ENGINEERING and MINING JOURNAL.

VOL. XXV., NO. 21.

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THE SCIENTIFIC PUBLISHING CO., PUBLISHERS,
27 Park Place, New York.

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AUSTIN GALLAGHER, Secretary.

THE CHATTANOOGA MEETING.

The meeting of the American Institute of Mining Engineers opened on the 23d at Chattanooga, Tenn., under most favorable auspices. There was a large attendance of members from the North and West, including a number of ladies. Among the members present were Messrs. STERRY HUNT, HOLLEY, SHINN, SAMUEL THOMAS, EGLESTON, DROWN, COGSWELL, FIRMSTONE, W. E. C. COXE, ASMUS, SLADE, RICHARDS, J. E. SWEET, etc. Mr. BAYLIS, of the *Iron Age*, and Mr. FROST, of the Chicago *Engineering News*, were also present.

The first session was held on Wednesday morning at the Stanton House, in Chattanooga. The proceedings comprised an address by Dr. HUNT and the reading of papers by Mr. J. E. SWEET on *A New Steam-Engine Indicator*, and by R. W. RAYMOND on *The Jenks Corundum Mine, N. C.*

In the afternoon the Institute proceeded in carriages to visit the works of the Roane Iron Co., the Tennessee Iron and Steel Co., the Chattanooga Iron Co., and the Vulcan Iron and Nail Works, after which the party ascended Lookout Mountain. The "prophetic account" of this trip, given in another column, may stand as authentic, with a few corrections. There was neither fiery black charger nor spirited mule: but there was a very interesting conversational explanation by Dr. HUNT, on the summit of the mountain, of the geology and topography of the region spread out below. Never was scientist provided with a more magnificent illustrative diagram, nor could such a natural scene well find a more sympathetic and intelligent interpreter.

The programme for the excursions was settled by the Council and Committee of Arrangements as follows:

Thursday.—Leave by steamer at 6.30 A.M.; reach Shellman at 9.30; visit Dade coal mines; return and visit South Pittsburg, Victoria, etc.; returning to Chattanooga at 8 P.M. Session in the evening.

Friday.—Leaving Thursday night, spend the day in Alabama and Georgia iron and coal fields.

Saturday.—Returning to Chattanooga at 1.30 P.M., spend the remainder of the day in that place and leave in the evening for Rockwood.

Sunday.—At Rockwood, after which members can return on Monday to Chattanooga, or go home from Rockwood via Loudon, as they may prefer. *

CHATTANOOGA, May 23, 1878.

THE DECLINE OF THE COMSTOCK.

For about a year past it has been evident to well-informed outsiders that in the Consolidated Virginia, at least, the limits of the great bonanza had been found; but the secrecy which envelops every thing connected with the mines on the great lode has enabled those in control to keep a knowledge of the actual condition of affairs from the public. The steady decline in the value of the bonanza stocks and the recent announcement of reduction in dividends and the closing—for several months—of the Consolidated Virginia mine, are opening the eyes of the stockholders to the actual state of the case. It is true the reason assigned for closing the mine is to make repairs to the shaft; but since the workings connect with two or three other shafts, through which it sent ore on previous occasions, it seems reasonable to believe the actual reason for the closing of the mine is scarcity of ore; and it should surprise no one to find next the announcement that the ore-body had given out. Of course it will then be found that for some time past the "bonanza firm" no longer had any large amount of the stock of these mines. It is, indeed, quite generally believed that at the present time a very large proportion of the stock is now held in the East and in England, where the unsophisticated investors have never imagined that the dividends so punctually paid might have any other origin than in net earnings. With the exhaustion of this great ore-body the glory of the Comstock will depart, scarcely any of the other mines on it having for a long time past paid expenses.

As confirmation of the accuracy of these views we find prominent, well-informed California capitalists making investments in Montana, Black Hills, and Colorado mines, and openly saying the Comstock no longer offers an inviting field for the investment of capital. They have recently purchased four or five of the best mines yet opened in the Black Hills, and have still more recently made offers for the largest and most valuable mines at Leadville, Colorado. It seems, indeed, as if Leadville, the Black Hills, and perhaps the Helena (Montana) mines would prove the successors of the great Nevada bonanzas, the glory of which is evidently departing.

LEADVILLE (COL.) MINES.

Only a short time ago we announced the sale, to the St. Louis Smelting Company, of a Leadville mine—the Camp Bird—for a little over $200,000 cash. We learn that quite recently some California capitalists have offered Messrs. STEVENS & LEITER $600,000 for their mine, the principal one being known as the "Iron" mine, also at Leadville. The offer was refused. It is rumored that $800,000 would take it, though the asking price is $1,000,000. This is a pretty good record for a camp which a year ago was unheard of.

THE BOUNDARIES OF MINING CLAIMS.

An important decision of the Supreme Court of Colorado, which we publish in another column, is worthy of attention. This clearly decides the question of "swinging" a claim to fit a vein, and says that the surface of a claim as located can not be changed to cover any more of the vein than outcrops on the original location. This is a point of great interest to miners, and as the decision seems to receive the approval of eminent legal minds, it will probably be established as the law of the land.

No doubt there is a certain satisfaction in having the meaning of our exceedingly complex mining laws defined. In this sense the Eureka-Richmond, and this recent Colorado decision, are most important, for the one explains what is meant by a vein or lode, and defines the mining rights as limited solely by the end lines; the other says that the end lines are to be drawn through the points where the out-crop of the vein crosses the side lines and passes out of the claim. Important and satisfactory as these decisions are in one sense, in another they merely demonstrate more clearly than ever the absurdity of our mining laws, which "no fellah can understand," and which make it all but certain that every mine which proves of value must pass through the ordeal of one or more lawsuits.

What we want is a thorough revision and simplification of the mining code, and the adoption of such clear and explicit rules as will prevent those conflicts of titles which are now the curse of most of our Western mining districts. The immense extension which the meaning of the term "lode or vein" has received through the Eureka-Richmond decision, and the great variety of forms which wider experience shows mineral deposits assume, render it extremely desirable that the rights of mining companies should be bounded by surface lines, and that every claim should hold all the minerals found within vertical planes drawn through all its bounding surface-lines, just as is now the case with coal, rock-salt, or other mineral deposits recognized as stratified in character.

Naturally this would require mining claims to have a larger area than is now allowed. Perhaps the limits allowed by the old Spanish law of about 200 meters in width, might be considered too narrow, but 500 meters in length by 300 meters in width (say 1500 × 900 feet) would give sufficient area in most cases. Then in no case could a miner follow his vein beyond his own lines, and he would, on the other hand, be entitled

to all minerals within the limits of his claim. This law would prevent most of the litigation which now so seriously interferes with the success of many of our best mines.

EDITORIAL CORRESPONDENCE.

Before the Chattanooga Meeting.

CHATTANOOGA, Tenn., May 16, 1878.

It is to be hoped that the attendance of members of the Institute of Mining Engineers at the Chattanooga meeting will be large. Certainly, if they could know in advance of the entertainment to be expected, they would not allow any ordinary difficulties to hinder their coming. Having been called by other engagements into the neighborhood, we have enjoyed already a slight foretaste of the beauties of the place and the hospitality of its citizens. Messrs. RATHBUN, CHAMBERLIN and EVANS of the Roane Iron Co., Gen. WILDER, Major KING of the U. S. Engineers (in charge of the public works on the Cumberland, Tennessee, and other southern rivers), and a number of others, who add to an intelligent interest in the objects of the Institute the power and disposition to make their guests feel very much at home, have put beyond doubt the success of the meeting so far as it can be secured at this end of the line. We may be permitted to say also—since some of the members purpose to bring their wives with them—that there is a bevy of charming ladies here, looking forward with kindly interest to the expected arrivals. In fact, Chattanooga appears to be able to run the whole meeting, providing the people as well as the entertainment!

This town, almost wholly the product of the years since the war, is one of the least provincial in the South. Its business is largely directed by northern people, and southern prejudice appears to have been disarmed, either by the personal virtues of the "Yankee" citizens, or by the material benefits which their presence has brought, or by both causes together. Two large iron works, the Roane and the Vulcan (of which more hereafter), the finest hotel in the South (the Stanton House), the beautiful National Soldiers' Cemetery, the lovely valley and the noble mountains inclosing it, and not least the battle memories which make every foot of the ground historic, recalling the deeds of GRANT, SHERMAN, THOMAS, HOOKER, and ROSECRANS, are among the attractions of the town and its immediate neighborhood.

We have just returned from a delightful excursion to the top of Lookout Mountain. Of course the Institute will go up there next week, and, for all we know, hold a meeting on the flat rock at the point; but we may be too busy or too tired to describe the expedition when it really takes place; and it has occurred to us that we may borrow a hint from our brethren of the daily press, and describe it in advance. Every metropolitan reporter knows how comfortable is that way of writing up all those occasions which may fairly be expected to go off according to programme.

Very well, then; next Wednesday or Thursday the members of the Institute, some 600 in number (we are obliged, you know, to take this part of the account from the catalogue—just as the New York papers always report as present at a dinner all who were invited), set out for Lookout Mountain. All the barouches in Chattanooga being but just sufficient to carry the ladies—every married member having brought his wife, and the city having kindly supplied bright-eyed consolers for all the bachelors—the gentlemen mostly walked. The officers and members of the council were mounted, the President leading the procession on a fiery black charger, and your reporter bringing up the rear on a spirited mule. The mule was, indeed, as spirited as the opposition to WOOD'S tariff; and his rider was frequently compelled to remain behind and reason with him. After every such delay, however, the ENGINEERING AND MINING JOURNAL was victorious, and the distant advance-guard was reassured by hearing the shouted exhortation from the reporter in the rear to hold the fort, for he was coming. (Little touches of this kind give *vraisemblance* to a report, and also light up the dullness of a purely scientific account. Hence we have introduced the foregoing. Something like it ought to happen next week, and we would, even in the interest of truth and fun, mount a mule, if necessary, to bring it to pass.)

The expedition was somewhat delayed by the President's unlucky discovery of an out-crop of slaty rock, which he insisted was "decayed," and for the closer examination of which he wished to dismount. But the ladies protested, and his gallantry yielded. To prevent further outbreaks of geological zeal, the President was vigorously attacked on the subject of the cosmical origin of carbonic acid; and this occupied his attention until the summit was reached.

The Institute gathered at Lookout Point and gazed with silent admiration upon the marvelous view spread out beneath—forest-covered mountains on every side; the winding and doubling Tennessee, the city and valley spread out like a map. Then the ladies began to explain the battles that had swept to and fro over this classic ground. Evidently they all knew all about it, though there were some trifling inconsistencies among them. It seemed to depend a good deal on the sentiments of the fair narrator in each case, whether the Union troops whipped the rebs, or the Confederates thrashed the Yanks. As for the famous fight "above the clouds," all parties agreed that there was very little of that. Some of HOOKER'S men swarmed up a steep precipice and found the small force of the enemy which had occupied the summit either gone or going. But there was hard fighting lower down on the flank of the mountain, and harder yet along the slopes of Missionary Ridge, where HOOKER'S force, crossing the end of Lookout, became the right wing of the Union army and joined in the general advance, before which (to put it as some of the ladies preferred) General BRAGG heroically fell back!

On the way back, by a happy inspiration, half the ladies walked and half the gentlemen rode, the parties changing about from time to time, so that every body had his turn. For further particulars, see the six hundred photographs taken on the summit, in which every member appears to be imitating the probable attitude of a commanding general, surveying the gory game at a safe distance.

For a wholly prophetic account of next week's excursion, we flatter ourselves that this is not bad.

*

EXPORTS OF BRITISH IRON AND STEEL.

The exports of iron and steel from Great Britain, in making a comparison of the first four months of this year with the like periods in the two previous ones, show a steady increase. To April 30th this year they were 696,086 tons, as compared with 644,014 and 604,341 tons to the same date in 1877 and 1876 respectively. The most marked increase has been in the export of railway material, which for the first four months of the several years were 156,144, 100,177 and 94,424 tons in 1878, 1877 and 1876 respectively. The markets for iron and steel, for railway use, have greatly changed within a few years. Whereas in 1871 the United States took from Great Britain over 500,000 tons of rails, this year it is not likely to take over 500 tons of all kinds of railway iron and steel. The exports to Russia for the first third of 1876 were 2854 tons, reaching 12,604 tons during the same part of 1877, and declining to 4630 tons this year. As compared with the first four months of 1876 the exports to British North America have declined from 11,900 to 5522 tons this year, and to Italy from 10,847 to 1479 tons. In making the same comparison, the exports to Egypt have increased from 136 to 2251 tons; to Australia, from 9929 to 29,594 tons; to Brazil, from 4468 to 7342 tons; to Spain and Canaries, from 4035 to 7520 tons; to Germany, from 1213 to 23,584 tons; and to British India, from 13,448 to 44,236 tons. The business with Sweden and Norway shows but little change, having been to April 30th, 1876, 15,064 tons, and to same date this year, 15,273 tons. Another great change noted in the trade is the largely increased demand for steel rails, and the falling off in the demand for iron rails. The exports of the former for the first four months of 1876, 1877, and 1878 were 19,188, 39,514, and 71,716 tons respectively, and of the latter 63,020, 45,842, and 52,214 tons respectively.

This change has been brought about by the same causes as in the United States, *i. e.*, by the great reduction in the cost of steel rails and the greater economy in their use, as compared with iron rails at the prevailing prices.

INTERNATIONAL MONEY.

HENRI CERNUSCHI, the well-known writer on finance, has written a letter to the London *Times* recommending that the coming International Monetary Conference be seized as an opportunity for the adoption of an international money for France, the United States and Great Britain. The *Times*, while pronouncing CERNUSCHI'S plan "a currency scheme," says there is a good deal in the subject raised which is worth discussion. CERNUSCHI'S plan, which he thinks would solve the double problem of an agreement as to the monetary ratio of gold and silver, and of international money, is stated by him as follows:

"France will replace her 20-franc gold piece by a 25-franc piece, exactly the same as a pound sterling. The 5-franc silver piece will be left untouched. England will have a 4-shilling silver piece exactly the same as the 5-franc piece. The gold pound sterling will be left untouched. The United States will replace their gold money by a 5-dollar piece exactly the same as the pound sterling; their silver dollar will be exactly the same as the 5-franc piece. In all three countries gold and silver will be admitted to mintage without restriction of quantity, and will be legal tender without restriction of amount. Thus France and the United States would coin gold pounds sterling like England, and England and the United States would coin 5-franc silver pieces like France. In all three countries there would be seen in circulation English gold and silver pieces, French gold and silver pieces, American gold and silver pieces—all equivalent. It would be perfect, absolute, international bimetallic monetary identity.

"By allowing the free mintage of a 4-shilling piece (a double florin) England secures to the entire world a par of exchange as fixed as if only gold everywhere circulated. England will be able to congratulate herself at seeing France and the United States coin and make use of pounds sterling. By coining a $5 gold piece of the value of the pound sterling, the United States will have to reduce the weight of the gold dollar to 25¼ grains. This reduction is to their advantage, and Mr. Sherman, the Secretary of the Treasury, himself proposed it in 1875. As regards the silver dollar, equal to the 5-franc piece, the reform is already, as it were, half realized. All the half-dollar pieces coined since 1873 are each exactly equal to half a 5-franc silver piece."

No doubt an accord among the great commercial nations upon the question of the relative values of gold and silver is the true and only solution of the bimetallic currency problem. Whether such an agreement can be secured is extremely doubtful, it being already reported that Germany has declined our invitation to an international conference on the subject.

While England herself is opposed to the double standard, yet her enormous silver interests in India—beside which our own are quite insignificant—would lead her to favor any well-considered plan by which the currency value of silver may be maintained. Canada, by requiring our silver coin to pay a duty of 17½ per cent like any other merchandise, has effectually prevented its circulation there. It is extremely desirable that the coinage of all countries should be brought to a common standard, but it is for us, at least, equally desirable that commercial nations should agree upon a relative value of gold and silver.

NEW PUBLICATIONS.

INTRODUCTION TO A HISTORY OF IRON MAKING AND COAL MINING IN PENNSYLVANIA. *Contributed to the Final Report of the Pennsylvania Board of Centennial Managers.* By JAMES M. SWANK, Secretary of the American Iron and Steel Association. Philadelphia, 1878. Octavo, 125 pp.

In this compact and handsome little volume, Mr. SWANK seems to have condensed the result of much patient consultation of authorities; and while there are, no doubt, many curious details of the early history of the iron and coal industries yet to be collected and preserved, it may fairly be presumed that the main outlines of fact are given with accuracy in these pages. We find, for instance, brief accounts of the earliest iron works in this country (Virginia, 1619); the first furnace (Massachusetts, 1643); the first mention of iron made in Pennsylvania (in a poem, printed 1692); the first clear notice of iron works in that State (Rutter's bloomary, near Pottstown, 1716); the first Pennsylvania blast-furnace (Colebrooke Dale, 1720); the old Durham furnace (1727); and a long list of other early charcoal furnaces, among which the Warwick (1737), Cornwall (1742), and Elizabeth (1750) are especially well known by reason of their long period of operation. The Warwick furnace ran during a part of almost every year from its erection down to 1867, when it was finally blown out. The Elizabeth furnace continued in operation until 1856, when it was abandoned for lack of fuel. The Cornwall furnace is still running, the oldest survivor of its class.

Mr. SWANK gives also interesting biographical notices of the pioneer iron-masters, RUTTER, NUTT, POTTS, LOGAN, KURTZ, COLEMAN, HUBER, STIEGEL, BRANSON, the GRUBBS, and many others. We learn from his account that the early Pennsylvania furnaces made from ten to twenty-five tons of pig-iron or castings per week, the highest limit being seldom attained. In 1731, pig-iron sold at Colebrooke Dale furnace at $15 per ton, and castings cost about twice as much as pig-iron.

The introduction of bituminous coke, raw coal, and anthracite, as blast-furnace fuels, is sketched with similar care; and FIRMSTONE, CRANE, THOMAS, HIMROD, WILKINSON, and other pioneers in this department, are celebrated as their enterprise deserves. Other departments of the iron and steel industry are also historically treated; and we think that in most cases Mr. SWANK has succeeded in stating even vexed questions with commendable impartiality and accuracy. Perhaps his remarks (p. 85) about the Martin open-hearth steel process are open to objection as not doing complete justice to the Messrs. MARTIN; but as he gives the authority for his account, we do not care to criticise it further than to say that Mr. SWANK might have included also the claim of the MARTINS, whose representations he does not seem to have consulted. As his story now stands, it seems to favor (though, strictly construed, it does not prove) the claims of other parties to priority over the MARTINS—claims which have been repeatedly defeated, and never victorious in the courts.

The part of this book devoted to coal is brief, and, although valuable not so valuable as the part we have described. In both, however, there are tables of statistics which will be extremely welcome, in this gathered and convenient form, to all the trades concerned. *

BOOKS RECEIVED.

Some of the books in the following list will receive extended review hereafter:

Note sur l'Acier Chromé. Par M. G. Rolland, Ingénieur des Mines. Paris: Dunod, Publisher. Pamphlet, pp. 11.

Notice sur les Tellurures d'Or et d'Argent du Comté de Boulder, Colorado. Par M. G. Rolland, Ingénieur des Mines. Paris: Dunod, Publisher. Pamphlet, pp. 44, illustrated.

New Method of Planning Researches. By R. H. Thurston, of Hoboken, N. J. Pamphlet, pp. 17.

Abstract of Statement of the U. S. Board appointed to Test Iron, Steel, etc. By R. H. Thurston. Pamphlet, pp. 7.

Salisbury Iron; its Composition, Qualities, and Uses. By R. H. Thurston. Reprinted from the *Railroad Gazette.* Pamphlet, pp. 40, illustrated.

Catalogue of the Minerals, Ores, Rocks and Fossils in the Pacific Coast Exhibit of the Paris Exposition of 1878. Pamphlet, pp. 99.

Pettengill's Newspaper Directory and Advertiser's Handbook for 1878. A complete list of the newspapers and other periodicals published in the U. S. and Canada; also the prominent European and Australasian newspapers. S. M. Pettengill & Co., Publishers, New York. 8vo, pp. 400.

First Annual Report of the Executive Board of the Pottsville Athenæum for 1877–78. Pamphlet, pp. 19. The *Miner's Journal*, Pottsville, Pa., Publishers.

The Discovery of Thermo-Motor Force. By John Aylwin Bevan, M.D. New York: *Evening Post.*

Die Kohlen- und Eisenerz-Lagerstätten Nordamerika's, ihr Vorkommen und ihre wirthschaftlichen Bedeutung. [The Coal and Iron Deposits of the United States. Report of the Austrian Commission, Exhibition at Philadelphia, 1876.] By Hanns Höfer, Professor at the School of Mines in Klagenfurt, Austria. 8vo, illustrated. H. Manz, Publisher, Vienna. Price, $2.

Principles of Machine Construction; being an Application of Geometrical Drawing for Representation of Machinery. By Edward Tomkins. Vol. I. 12mo, pp. 368. Illustrated. Vol. II., plates (48). New York: G. P. Putnam's Sons. Price, $4.50.

Map of the Township of Marmora; showing the Position of the Mines [Gatling, Hawkeye, Tuttle, etc.] now being worked for gold. Compiled from the Geological Survey of Canada. Handsomely colored.

Map of the Anthracite Coal Fields of Pennsylvania. By J. B. Strauch and A. B. Cochran, Mining Engineers, Pottsville, Pa.

International Exhibition (1876) *Reports and Awards.* Edited by Francis A. Walker, Chief of the Bureau of Awards. J. B. Lippincott & Co., Publishers; American News Co., Agents. Group I.; price, $2; Group III.; price, $1.50. Group X.; price, 75c.; Group XIV.; price, 75c.; Group XVIII.; price, $1.25; Group XX.; price, $2.

Geological and Topographical Atlas, accompanying the Report of *The Geological Explorations of the Fortieth Parallel.* Prepared under the direction of Brig. and Brevet Major-General A. A. HUMPHREYS, Chief of Engineers, U.S.A. By CLARENCE KING, U. S. Geologist-in-charge. 1876. For review of the Report this Atlas accompanies, see ENGINEERING AND MINING JOURNAL of March 30th and April 6th, 1878.

THE WAY TO MAKE BUSINESS BRISK.

Special Correspondence of the Engineering and Mining Journal.

The establishment of the Mississippi Valley Department of the ENGINEERING AND MINING JOURNAL, destined and ready to represent the mining and engineering interests of that region, is a feature which will be recognized as an additional evidence of the already well-known independent and national spirit of the JOURNAL. With its headquarters at New York, Denver, and St. Louis, it embraces this whole continent and secures the most direct information on the important affairs which it aims to honestly represent and illustrate.

The Mississippi Valley District, with St. Louis as its great center, the States of Missouri, Illinois, Kansas, and Arkansas respectively, as large producers of iron, coal, lead, and zinc, as well as the argentiferous region of Southeast Missouri, are promised by the JOURNAL as much attention and space in its columns as the recognition and acknowledgment of such exertions shall be substantiated by business patronage.

The immense mineral resources of Missouri and adjoining States will surely be benefited by truthful reports. The manufacturing interests of St. Louis can be largely advanced by judicious canvassing in the advertising columns of the JOURNAL. In the manufacture of engines, machines, boilers, pumps, apparatus, and castings for dressing, concentrating, and smelting works, St. Louis has made notable progress.

I dare assert that at least one fifth of all the industry which, notwithstanding the general depression, enlivens the foundries and shops of this city, has the above destination. The discrimination in freight tariffs which, for a number of years, placed her at great disadvantage with other points, has given way to a more favorable condition. St. Louis can compete at present in numerous branches of manufacture, and large orders from far distant States are of frequent occurrence. In order to make it a matter of constant occurrence, the large establishments of St. Louis, such as foundries, shops, and factories, must avail themselves of the only opportunity to place, in a direct and economical way, the knowledge of their existence before the eyes of the miners of the Far West, and that only opportunity of a direct canvass at comparatively little expense is offered by the advertising columns of the JOURNAL. The latter finds its way every week to the hands and eyes of thousands whose business necessitates the purchase of machinery, boilers, engines, pumps, castings, and other articles and supplies.

Every intelligent miner reads the JOURNAL. Every manufacturer whose sphere of custom belongs to the interests represented in the JOURNAL is a subscriber and advertiser thereof—those excepted, of course, who have not yet been waited on by the agency or have just commenced to think the matter over.

B.

THE MANUFACTURE OF PIG-IRON IN ST. LOUIS.

Special Correspondence of the Engineering and Mining Journal.

Pig-iron can be made at St. Louis at about the same cost as in Pittsburg. The fuel is dearer, the ore cheaper than there, but the market is limited. In order to find a market for the capacity of our furnaces, the cost of production must be low enough to bear the transport to the Pittsburg rolling mills. Who is to carry, or who can and will carry, the difference? The iron ore companies will not take less than $5 and $5.50 per ton. The furnace companies will not start their works unless assured of some profit. The coal companies are at loggerheads with their miners, and the coke companies will not go to a sacrifice in behalf of the St. Louis iron interests.

From the above I reason as follows: Egotism is the soul of business. The iron companies will get rid of their iron with or without St. Louis furnaces. Their prices for ore will be regulated by what they can get at Pittsburg. The coal companies see their profits already too much reduced by competition among themselves to voluntarily consider or care about the iron interests of St. Louis, if an improvement of the same can be realized only by a sacrifice on their part. Pittsburg coke is too far, and the Carbondale, Ill., coke finds a ready sale for more than its present capacity, at prices which would be out of the question in this regard.

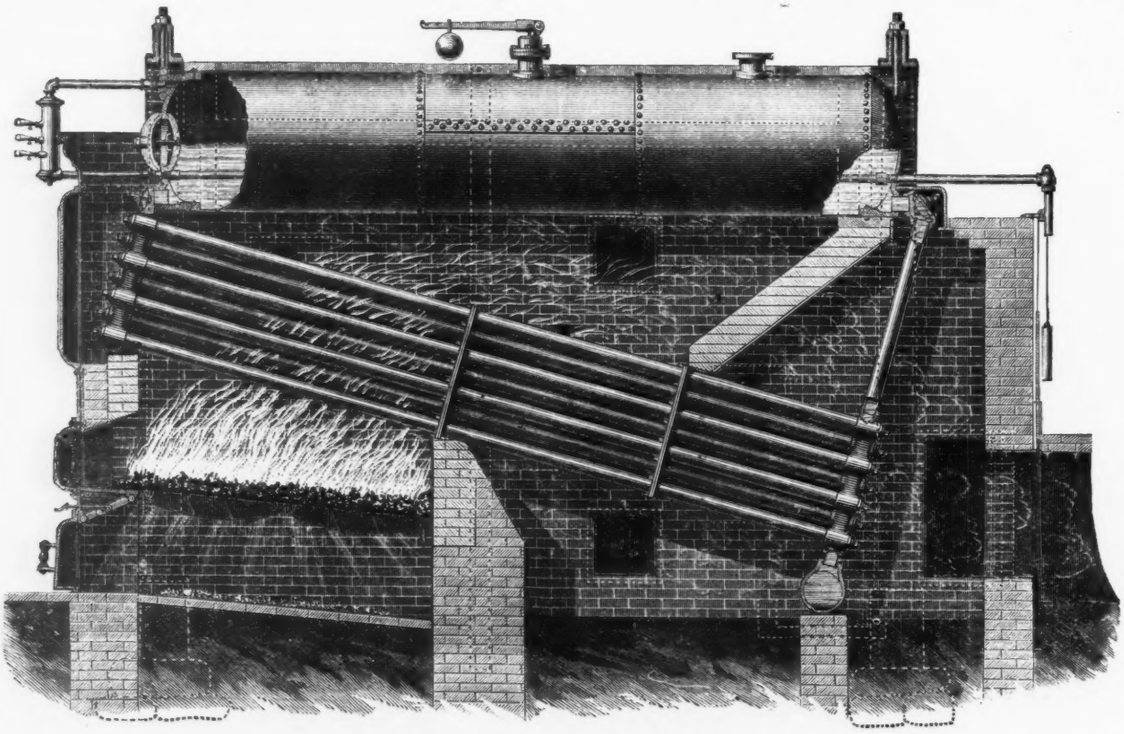
B.

PERU COAL FIELDS.—The *St. Louis Journal of Commerce* of the 11th inst. says: "A coal bed of unknown extent has been discovered at Chala Alta, near Oluzco, in the Department of Libertad, Peru. The government sent a scientific commission to examine the deposit, and has received a highly favorable report. The Chala Alta coal field will, it is estimated, suffice to supply the requirements of the whole of South America, and the quality and cheapness of the coal will enable it to drive the English coal from these markets. The average consumption of coal on the coast of Peru is estimated at 200,000 tons per annum, which, at the rate of 22 soles per ton, gives a total of 4,400,000 soles, at present paid to England for fuel, and which Peru hopes to save by utilizing her newly discovered source of coal supply."

WATER-TUBE SAFETY STEAM BOILER.

The common tubular boiler, with internal flues or tubes, has been much used for mining purposes, but where great distances or mountainous regions must be traversed, it can be employed only at a high cost for transportation, or for labor of completion and erection in place if it be carried in small or light packages. The water-tube type of steam boiler, a leading example of which is illustrated below, has been found to be peculiarly adapted to use in mining districts, because it may readily be separated, in its design and construction, into parts of convenient size and weight, even for transportation upon mules; and also because of the convenience of erection of the whole structure in ordinary or unskillful hands. If to these qualities be added the marked durability of a thoroughly well-built boiler of this type, and also the economy of fuel resulting from its use, it will be seen that little more can be desired even for the most rigorous service.

Among the special details of construction of the boiler shown in the engravings, may be named the use, in all the connections of parts, of joints made with an "expander." By this means the certainty of accurate and tight work is secured, and also, what is of equal importance, the utmost ease of repair, so that, with common workmen, a tube, if damaged, can be replaced with slight delay or expense. The certainty of freedom from need of repair is promoted by the use, for the heating surface, of tubes only, so that there is no liability to any overheating and cracking of thick plates which may have become incrusted. If at any time the tubes become slightly scaled, they can be readily scraped out clean through the hand-holes which are provided. These are placed opposite each end of each tube, being fitted with faced iron-to-iron joints, and experience has amply shown that no other type or kind of boiler can be more easily and completely cleaned from scale, or from dust and soot, than this. The lodgment of scale in the tubes is prevented to a great degree by the circulation of the water, which sweeps the sediment out of them and around into the mud-drum, from which it may be blown out and removed at convenient intervals.



ELEVATION AND LONGITUDINAL SECTION.

The reasons for the important economy secured in the use of this boiler are chiefly the large fire-box, or furnace space, immediately over the fire, the direct exposure of the thin tubes to the heated gas which strikes against them, and also the upward circulation of the whole body of water contained within the tubes, so that the particles of water are continually swept along into effective contact with the heated metal. A very perfect combustion may thus be maintained, the flame passing between the tubes, and the gas returns a second and a third time across them before escaping to the chimney. It will be seen also that the cooler particles of water, descending from the drum into the group of tubes, are brought effectively into contact with the cooler gas at the last moment before it escapes, as they should be, to secure the most complete economy.

We are informed that more than 30,000 horse-power of these boilers are in use, and that 1000 horse-power are now under construction. Among the latter may be named one battery of 380 horse power for a firm who have run 600 horse-power for the last 7 years, one battery of 240 horse-power, one of 230 horse-power, and one of 120 horse-power.

Any further information may be had from Messrs. BABCOCK & WILCOX, 30 Cortlandt street, New York.

GERMAN PATENTS.—The German Patent Office received 6424 applications for patents during the past year, a greater number than was applied for in any other country, except in the United States.—*Engineering.*

CAN A PATENTEE SWING HIS CLAIM?—AN IMPORTANT MINING DECISION

We take from the *Rocky Mountain News* the full text of a decision filed by the Supreme Court of Colorado, on the 15th inst., in the case of Wolfly & Skinner *vs.* The Lebanon Mining Company, which came up on appeal from the District Court of Clear Creek County:

"The gist of the decision is contained in the declaration by the court that a patent conveys not only the tract of land which a claimant has platted, but also the lode therein contained, with the right to follow it in its downward course, into adjoining premises, but not when in its general strike it departs from the side lines. In the latter case the lode is the subject of location by whomsoever it may be discovered.

"Wolfly & Skinner were represented by Messrs. J. B. Belford and Lewis C. Rockwell, and the Lebanon Company by H. M. & W. Teller, Esq.

Wolfly & Skinner *vs.* Lebanon Mining Company—Appeal from District Court of Clear Creek County.

"*Thatcher, C. J.*—This was an action of ejectment brought by appellee against appellants to recover the possession of 800 feet of the Ben Harding Lode. The declaration contained three counts, in the first of which the appellee claimed title in fee, and in the second and third it claimed title by pre-emption, occupation, possession and purchase, under and by virtue of the local laws, customs and usages of miners in Griffith Mining District, the laws of Colorado and those of the United States.

"In support of the second and third counts much evidence was introduced, which, however, the court charged the jury to disregard in the following instruction:

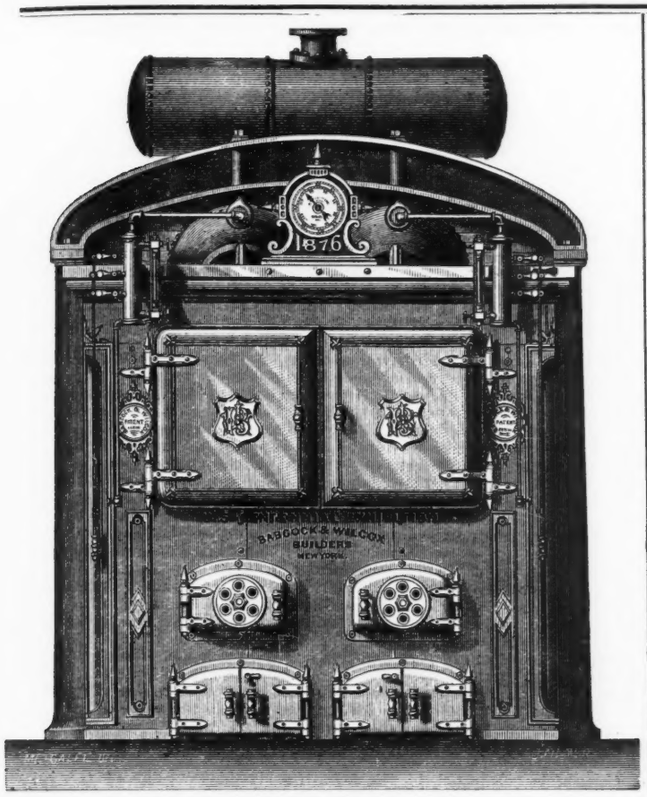
"'After the issuing of the patent, all previously acquired rights by the patentee under the local laws, usages and customs of the particular district in which the claim is located, are merged in the patent, and the plaintiff having put in evidence a patent from the United States, you must not consider the right or title acquired prior to the issuing of the patent, such rights being merged in the patent.'

"Whether this instruction correctly lays down the law we need not now decide. It could not prejudice the defendant. It is enough to say that by this instruction the jury was necessarily confined to the issue made upon the first count. By their verdict they found that the plaintiff was the owner in fee of the property described in the declaration. This verdict was responsive only to the first count.

"The evidence tended to show that the Ben Harding lode, in its general course or strike, departed from the vertical side lines of the location as described in the patent and represented by the plat incorporated therein, and entered the Bell Tunnel lode location, which was patented under the Act of Congress of May 10th, A.D. 1872. That the plaintiff had the right to so follow the patented lode was affirmed in the instructions of the court. To determine its correctness, reference must be had to the Act of Congress of July 26th, 1866, under which the Ben Harding lode was patented.

"At common law a grant of land carries with it all that lies beneath the surface down to the center of the earth. At his pleasure the owner of the soil may apply to his own purposes whatever is included in the segment of the earth carved out by his descending boundary lines.

"Says Sir William Blackstone (Book 2, p. 18): '*Cujus est solum, cujus est usque ad cœlum*, is the maxim of the law; upward, therefore, no man may erect any building or the like, to overhang another's land; and down-



WATER-TUBE SAFETY STEAM BOILER. FRONT ELEVATION.

ward, whatever is in a direct line, between the surface of any land and the center of the earth, belongs to the owner of the surface; as is every day's experience in the mining countries.'

"By the rules of the common law, except so far as such rules have been modified by statute, must the extent of the plaintiff's patented grant be determined. That there may, however, be a grant of mineral separate from the grant of the circumjacent land, and *vice versa*, where the grantor manifestly intends that each shall form a distinct possession and different inheritance, admits of no doubt. The question recurs: What did Congress, by its declared will in the act of 1866, authorize the United States to grant? In the light of a just interpretation of this act, must the Ben Harding patent be construed. If the patent is broader than the law, it is to that extent ineffectual. Based upon the statute, its validity, and the extent to which it operates as a conveyance, must be determined by reference to the statute.

"Section two provides that it shall be lawful for the claimant of a vein or lode 'to file in the local land office a diagram of the same, so extended, laterally or otherwise, as to conform to the local laws, customs and rules of miners, and to enter such tract and receive a patent therefor, granting such mine, together with the right to follow such vein or lode, with its dips, angles and variations *to any depth*, although it may enter the land adjoining, which land adjoining shall be sold subject to this condition.'

"This section clearly permits the patentee to follow the lode in its descending course to any depth, although in its downward trend it is carried by its dips, angles and variations into the adjoining land. Here is a departure from the common land doctrine. The qualifying words, however, '*to any depth*,' limit the direction in which the mine may be pursued beyond the side lines. The claimant is required to file in the land office a diagram of his vein or lode. This is his own act.

"The law contemplates that before he prepares his diagram he shall so far expose and develop the lode as to be able to trace its course. The position, that if the plat made by the surveyor does not cover the lode, the patentee should be permitted to so shift the lines of his patent as to include the lode which he before, through his ignorance or indolence, failed to properly locate, is, it is conceived, without force. The error is not the mistake of a government officer, but the mistake of the claimant, and others ought not to be permitted to suffer by it. It is not the province of the surveyor to either discover or determine the course of the vein. He acts under the directions of the claimant of the mine, who has already furnished a diagram of his lode. His duties are to survey the located premises and make a plat thereof, indorsed with his approval, designating the number and description of the location, the value of the labor and improvements, *and the character of the vein exposed.* [See Sec. 3.] However tortuous might be the course of the lode, the claimant had a perfect right to follow it up and prepare his diagram so as to include it, together with the surface ground on each side thereof allowed by local laws. There is no language in the act that requires the diagram to be in the form of a parallelogram or in any other particular form.

"From an examination of the entire act it seems to us that the central idea of a mining location under its provisions is that there must be a discovered lode within it, whose *locus* in its general course is embraced by its boundaries.

"An assumed mining location, which in fact contains no mine, would be wholly false and would contravene the law. Until a patent issues, to the extent only in its onward course, that a discovered lode is within the prescribed exterior boundaries of the claim, is the location itself unassailable. Patterson *vs.* Hitchcock decided this term.

"The surface ground and the lode are not independent grants; it is not the purpose of the act to grant surface ground without a discovered lode. The lode is the principal thing and the surface ground incident thereto.

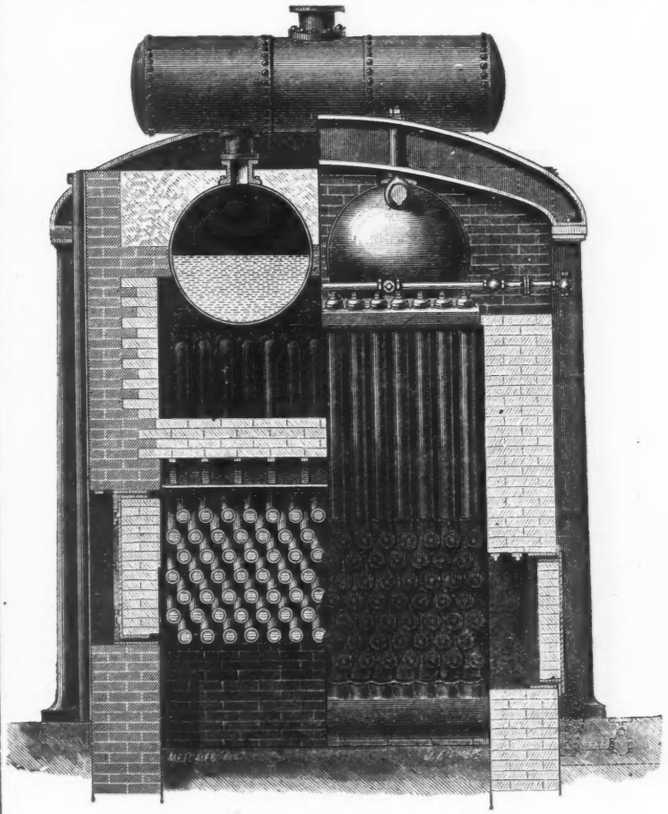
"In conveying a segment of the earth located under the provisions of the act it is the intention of Congress to convey a mine contained within that segment as the substance of the grant.

"The act appeals to the industry and enterprise of the miner to make sure that the lode is within his location. The higher his diligence in this respect the greater will be his reward. If by lack of assiduity and energy he makes an untrue location—a location not embracing the lode he seeks to secure—he can not be heard to complain that others have explored and occupied the adjacent territory and discovered thereon a lode which might have been embraced in his diagram. If, as the evidence tends to show, the Bell Tunnel lode is but a continuation of the Ben Harding lode (after its departure from the vertical side lines) extending through the adjacent location, upon what principle of justice or of law in the absence of an express statutory provision, can the patentee of the lode last named claim the right to encroach upon the premises embraced by the Bell Tunnel lode location, and deprive the owner thereof of the fruits of his discovery?

"Before a claimant is entitled to a patent under the act of 1866, a compliance with its provisions is indispensable. It is necessary that a diagram of the lode claimed shall be filed in the local land office. Notice of the extent of the claim must be given to the world by posting such diagram in a conspicuous place thereon, together with the declaration of the claimants' intention to apply for a patent. The register of the land office is required to give a like notice by publication in a newspaper, and by posting in his office for the period of ninety days, which is, in effect, a summons to all persons whose interests may be affected by the issuance of a patent in conformity with the diagram, to appear and file an adverse claim. If, after the expiration of ninety days, no one appears to contest, the surveyor-general, upon application of the claimant, is required to survey the location and make an approved plat thereof, and designate the number and description of the lode, the value of the labor and improvements, and the character of the vein exposed. For what purpose must these several acts be done? Do they not point with certainty to a segregation from the public domain of a described tract embracing a lode? If they have any significance, we are constrained to the conclusion that one of their leading objects is to require that the claimant shall, before applying for a patent, ascertain the exact location of his lode, and fix that location by his diagram so that the public may be apprised of the limits of the lode location, and may thereafter with safety explore and occupy adjacent tracts.

"It is apparent that within the meaning of the act the lode claimed is to be fixed by reference to the 'plat and survey' of the location, and although, in pursuance of its provisions, the lode in its descending course may be followed *to any depth* with its dips, angles and variations into the premises adjoining, in its general strike or course it may not depart from the line of the location.

"It is, however, insisted that, if not by the precise terms of the act of July, 1866, then by virtue of territorial legislation and local customs and rules of miners, the patentee was entitled to follow the course of the discovered lode whether it was comprised within his location or not, that



WATER-TUBE SAFFTY STEAM BOILER. CROSS-SECTIONS.
In front of mud-drum. Behind the boiler.

one of the purposes of the act of Congress was to recognize and confirm mining rights and titles as they existed under local laws and customs.

"The act provides that the mineral lands of the public domain are free and open to exploration and occupation, subject to such regulations as may be prescribed by law, and subject also to the local customs or rules of miners in the several mining districts, *so far as the same may not be in conflict with the laws of the United States.* Before the passage of this act, with the view to protect the miner in the occupation of the public domain, although he was technically a trespasser as against the United States, the courts held that as between him and a third person, he might be considered as being in possession with the assumed assent of the owner. But by that act the assent of the United States to the exploration, occupation and purchase of mineral lands of the public domain is expressly declared. Under its provisions, the miner, having located his claim, is to be treated as an express licensee of the United States, and, independent of a purchase from the government of his mining claim, he has, upon compliance with the terms of the act, a right to appropriate the mineral therein contained. A title in fee by patent is offered him, which he may at his pleasure accept or reject. By the statutes his rights are circumscribed and determined. The act of Congress from which they spring is paramount to all local laws, rules and customs. The first section of the act, we think, leaves no room for doubt on this point. As long as they are not in conflict with the laws of the United States, they are of binding force and must be observed. But the act of Congress can not be subordinated to the local laws and customs. It is in the light of its provisions that every patent issued in pursuance thereof must be construed, and we can not therefore admit that any such patent can by virtue of local laws and customs transfer to the patentee any greater interest or estate than that which the paramount law warrants.

"In the case of Chapman *vs.* Toy Long (4 Sawyer, 34), the court, commenting upon the rights of the miner upon the public domain since the passage of the act of 1866, and subsequent acts upon the same subject, says:

"'But under the mining laws of the United States now in force, the locator of a mining claim, as to the right to the possession of the premises and to appropriate minerals therein, becomes and is the assignee (licensee) of the United States so long as the law remains in force and he complies with the conditions imposed by it. Until Congress withdraws this license by a repeal of the law, the right of the locator to the possession of his claim and to appropriate to his own use the mineral deposits therein, is full and complete, and he need not take any steps to purchase the land or obtain a patent for it. That is a matter left to his own opinion or sense of self-interest.'

"There is no time prescribed within which he shall apply for a patent. Ample opportunity to ascertain the precise *situs* of his lode with reference to the contiguous land is given him. The surface and the lode are both the subject of the grant. The patent operates to convey not only the circumscribed tract of land, which, under the claimant's direction, has been platted, but also the lode contained therein, with the right to follow the same in its downward course into adjoining premises, but not to follow it when in its general strike it departs from the vertical side lines. In the latter case, after its departure, it is the subject of location by whomsoever it may be discovered.

"If then, as the evidence tends to show, the ledge on which the Ben Harding lode was located, deflected in its general strike from the patented side lines, the patentee is not entitled, in virtue of his patent, to its possession beyond the side lines, as against one who has subsequently located it and patented it.

"Judgment reversed, and cause remanded for further proceedings not inconsistent with this opinion."

THE GROWTH OF THE CANADIAN PHOSPHATE INDUSTRY.

The existence of workable deposits of the mineral Apatite in this country has been known for many years, but it has only been quite recently that its value and importance have been fairly recognized.

The stimulus imparted to the production of phosphates and the present activity in the market are not the effect of a mere feverish excitement, but arise from the rapid exhaustion of the Peruvian Guano deposits (one authority has stated that at the present rate of consumption but little guano will be left in three years, and fresh discoveries of any importance are unlikely), partly from the great falling off in the production of high grade phosphate in the mines of Spain, France, and the West Indies, whence the principal supplies were drawn, and in part from the constantly increasing demand both in Great Britain and the continent for active fertilizers.

The value of this manure is determined by the quantity of phosphoric acid it contains, and our product, a fluor-Apatite, is the richest mineral phosphate known. Normally it contains, according to Chapman, phosphoric acid, 42·26; lime, 55·60; fluorine, 3·37; or, phosphate of lime, 92·26; fluoride of lime, 7·74. While low-grade phosphates are abundant in many countries—for example, on the Charleston River in South Carolina there are enormous beds of coprolites, still affording immense quantities, but rarely giving over 50 to 55 per cent—they are comparatively neglected, and are relatively of much less value than ours, as will be seen by the market prices.

The mineral is sold on the percentage of phosphate of lime it contains, as ascertained by analysis, the standard price being 1s. sterling per unit for all quantities under 70 per cent, while for 70 per cent and over 1s. 3d. to 1s, 3½d. sterling is paid, with an increase of one fifth of a penny for each additional unit upward. Thus, while a 70 per cent coprolite is worth in London $14.40, Canadian Apatite of 70 per cent brings more readily $21; 80 per cent, still readier sale at $25.60; 90 per cent, most wanted, at $30.60. These are last year's prices, but it is expected, from the strong competition manifested, that there will be an advance of at least 1d. per unit, which would make 80 per cent worth about $27.25 per gross ton in England, or, deducting $7 freight and charges from Montreal, say $20 net per ton at that point.

At this writing there are free buyers in Montreal at $18 to $19 for 80 per cent cash, a keen competition existing between English and German manufacturers: the same time last year the price was $13.50 to $14. Many large parcels at shipping points, on the Ottawa River, have changed hands at $16.50 to $17, and in one instance $18 per 2240 lbs. is mentioned.

The deposits are in the form of irregular and lenticular bunches, or beds and veins; more rarely the latter, and these are of all dimensions from a few pounds to many hundreds of tons. Nearly all the workings are quite superficial, few reaching a greater depth than 10 or 12 feet. The few deep-sinkings as yet tried have been generally quite successful. Some of the largest deposits known have been heavily "capped," and but for perseverance in sinking would have remained undiscovered. It appears, as far as tried, that generally the deposits are somewhat in layers, with hard rock between, at times holding good strong "leads" from one mass to another, but frequently quite cut off, and having no clue to guide. The mineral itself is soft and easily worked, but the associate rocks are often very tough and hard to quarry, so that the cost of production varies with the character and extent of the deposit. Large quantities have been mined at from $1.50 to $2.50 per gross ton at the pits. But an average cost of $8 per ton at the mines, allowing $1.50 to $2.50 for haulage to shipping points, is a fair estimate, and a lower cost should not be counted upon.

The name Apatite, signifying deceiver, is very characteristic of this mineral, from its close resemblance to many others, especially those with which it is placed. Many and grievous errors have been the consequence. An instance is mentioned of work being carried on for months, and several thousand tons of pyroxene, closely resembling phosphate, piled up ready for shipment. The reverse, again, is not by any means infrequent, and an excellent quality, but of a variety not recognized, thrown on the "dump." As more experience is gained, these annoyances will disappear.

In appearance the mineral varies greatly. The first discovered was of a green color, and for several years nothing else was looked for; but now there is every shade from almost white to the deepest bottle green, and a beautiful blue green, and from pale buff to dark brownish red. The structure is also various; when crystallized it is coarsely lamellar, and this form is most readily recognizable; but it merges from this to the granular form known as "Sugar Phosphate," and this graduates again into a very close-grained, dense rock, wholly differing in appearance from the other two, and is very often passed over as useless. Few of the deposits or masses are free from foreign matters. Mica in plates of all sizes is rarely absent. Iron pyrites, pyroxene in nodules or crystals, very frequent; lime, feldspar, quartz, etc., also. All these have to be removed by hand-dressing, and upon their thorough removal depends the value of the stuff. Average shipping parcels range from 72 per cent and 75 per cent, to 80 per cent, choice lots 85 to 87 per cent; quantities rarely exceed the latter figure.

Canada is celebrated for the beautiful six-sided crystals of this mineral, of every shade and color—these are commonly found imbedded in lime. At the Paris Exhibition there are some enormous blocks of pure phosphate, several of which weigh upward of a ton each. The specimens came from the township of Templeton, and form the foundation of our Canadian trophy.

The great importance of this product will be made clearer, and the outlet for it shown more forcibly, by directing attention to a few facts. A single manufacturer near London, England, requires 1000 tons of mineral phosphate a week to supply his works. There is a single manufactory in Hamburg which requires from 30,000 to 40,000 tons per annum. Their agents have already purchased several parcels in Montreal. The manufacturers of Antwerp have recently sent orders also. The prices appear to be higher on the Continent than in England; but it is not easy to obtain freights thence. United States parties, with their usual promptitude, have already directed their attention to our product, and have been mining themselves and shipping by rail to New York all the winter. About 300 tons were shipped that way last winter. Besides the large demand for fertilizers, the best qualities of our mineral are taken to the Continent and used as one of the sources of phosphorus, and experiments have been made with a view to using it also in the manufacture of porcelain, instead of ordinary bone-ash.—*From the Monetary Times of Toronto, May 17th.*

THE METALLURGY OF NICKEL.

By M. Badoureau, in Annales des Mines.

[*Continued from page* 347.]

The furnace has two tuyeres, each 6 centimeters in diameter, which blow in together 25 cubic meters of air at a pressure of 28 millimeters. The fire-place measures 0·m80 by 1·m25, and has a double set of bars, the lower being of iron and the upper of slag-brick. Wood is charged in on the upper grating; it is converted into charcoal and falls on the lower grating, when its combustion is completed. The carbonic acid produced on the lower grating is transformed into carbonic oxide by its passage over the incandescent wood. The furnace is fitted with condensation chambers. The charge of speiss weighs 1800 to 2000 kilograms; heating precedes blowing. After a lapse of about ten hours, the mass is melted and the blast is set on. Glass, quartz and carbonate of soda are now added from time to time. The slag is drawn off continuously; it is black and ferruginous, but only contains nickel and cobalt in the form of stray particles of speiss, containing 1 or 2 per cent of nickel and cobalt. They are sent back to the first melting. At the end of twelve or fourteen hours, a stop is put to the operation, the speiss now containing 8 to 10 per cent iron. The enrichment is carried no farther for fear of losing cobalt by silicatization. The complete operation lasts twenty-four hours, and for 100 parts of roasted speiss there are consumed two of white glass, four of quartz, one of carbonate of soda. The furnace is under the charge of three men, who work twelve consecutive hours; the operation takes up six working days.

The following analyses with which I have been furnished show the rapidity of concentration:

	No. 1 Speiss.	No. 2 Speiss.	No. 3 Speiss.
Ni,Co	20·7	31·9	50—52
Cu	1·6	1·9	1— 2
Fe	44·3	26·4	8—10
As	21·3	36·3	38—40
S	10·2	3·1	1— 2
	98·1	99·6	98—06

At these works 1000 tons of ore are dressed per annum, and 200 tons of

second speiss made. Half this speiss is sent to England and the other half is converted into 60 tons of third speiss, the treatment of which is finished according to a method which I intend to describe further on.

§ 6. EXAMPLE FROM THE LOSONEZ WORKS.

At these works there were two varieties of stuff treated : (1) 140 tons of Dobsina ore, containing 14 to 20 per cent nickel and cobalt, and ½ per cent copper ; (2) 20 tons of Leogang speiss, containing 34 to 38 per cent nickel and cobalt, and 3 per cent copper ; (3) 110 tons of Klefva matt, containing 40 to 45 per cent nickel and cobalt, and 20 to 25 per cent copper. These different matters are melted once or oftener, the meltings being preceded by roastings carried out at a reverberatory furnace. Only stuff which is poor in nickel, cobalt, or arsenic is heap roasted. A speiss is got the richness of which in nickel and cobalt will vary between 50 and 54 per cent. Part of this product is sent to Bärendorf, while another part undergoes a final roasting and melting in a reverberatory furnace, where it is transformed into a product the richness of which ranges between 61 and 64 per cent. Rich slag from these various operations are remelted to get back any grains of speiss.

There are here seven reverberatory furnaces, of which five only are alight. The hearth is a square, each side of which measures 3 meters. The charge is 800 to 1000 kilos, and the operation lasts three or four hours. The fuel used is wood, of which 1·7 stère, at 6·50 fr. the stère, is consumed per twenty-four hours, the consumption of fuel per ton of roasted matter being 0·27 stère. The furnace is attended by a couple of men, who relieve each other every twelve hours. On an average 6·3 tons of stuff are roasted in twenty-four hours, and the expense per ton of stuff is thus :

0·27 stère of wood at 6·50 fr	1·76 fr.
0·32 of a day's labor, at 2·25 fr. the day	0·72 "
	2·48 fr.

FURNACE MELTING.—The two melting furnaces generally work together. Their section is similar, namely, 68 by 92 centimeters at the height of the boshes, and 51 by 92 centimeters at the height of the tuyere, the heights of the respective furnaces being 1·70 meter and 2·50 meters. Each has a single tuyere 5 centimeters in diameter. With the roasted "metalline" (matt or speiss), is charged in a weight of quartz equal to the weight of oxide of iron contained. Sometimes, but only accidentally, limestone gets in. In twenty-four hours from 7 to 8 tons of batch are melted in each furnace, 0·30 ton of charcoal being consumed per ton of stuff treated. The crucible used is made of a mixture of clay and pounded brick. There are two external crucibles, in which rich "metalline" is run alternately. —*Iron.*

(TO BE CONTINUED.)

NEW PATENTS.

The following is a list of the new inventions relating to Iron, Coal, Mining Machinery, Chemical Apparatus and the treating of Precious Metals, etc., from the official *U. S. Patent Gazette*, for weeks ending April 9 and 16 :

No. of Patent.	*Title of Invention.*	*Name of Inventor.*	*Residence.*
202,092	Compound to increase the Combustion of Fuel	D. C. Breed	Buffalo, N. Y.
202,121	Governors	Jas. A. Rigby	Carson City, Nev.
202,122	Ore Separators	D. C. Roberts	Chicago, Ill.
202,128	Pump Valves	Arch. W. White	San Jose, Cal.
202,134	Rotary Engines	Benj. T. Babbitt	New York, N. Y.
202,153	Wire Rope Harness Traces	Fred. M. Collier (a)	Boston, Mass.
202,171	Reciprocating Steam-Engines	Thos. A. Henderson	Natchez, Miss.
202,178	Pumps	Wm. S. Leney	Lithopolis, O.
202,274	Quicksilver Furnaces	Richard F. Knox	S. Francisco, Cal.
202,279	Processes of Manufacturing Illuminating Gas	T. G. Macy & Co.	Boston, Mass.
202,280	Tuyeres	Jas. F. Maguire	New York, N. Y.
202,298	Hoisting Mechanisms	Sam'l E. Stokes (b)	Philadelphia, Pa.
202,306	Coal Screens	Wm. Van Houten	Pella, Ia.
202,321	Apparatus for Mounting and Transporting Ladles for Molten Metal	Wm. Aikin & Co.	Louisville, Ky.
202,323	Furnace Grates	John Ashcroft (c)	Brooklyn, N. Y.
202,338	Rock Drills	Wm. H. Elliot	New York, N. Y.
202,366	Machines for making Retorts, Crucibles, etc.	Wm. Morgan	Jersey City, N. J.
202,372	Coal Drilling Machines	John Rice (d)	Carroll Co., O.
202,374	Processes and Apparatus for manufacturing Illuminating Gas	Geo. Ramsdell	Detroit, Mich.
202,415	Platforms for Submarine Rock Drilling	Thos. Cumming	Hackensack, N. J.
202,417	Well Boring and Drilling Apparatus	John R. Davis	Bloomfield, Ia.
202,429	Traction Engines	Michel Fortin	Stillwater, Minn.
202,443	Separating Sulphur from its Ores	Rob't G. Leckie	Acton Vale, Can.
202,512	Pumps	Heinrich Berg	Meinhardt, Ger.
202,530	Converting Non-Chilling Iron into Chilling Iron	Samuel Ford	Allegheny, Pa.
202,565	Oil Pumps	Cornelius McCarthy & Co.	Petrolia, Pa.
202,566	Metal Heating Furnaces	John McCrea	Wilmington, Del.
202,570	Methods of and Apparatus for Obtaining Oil from Oil Wells	Nathan S. Minness & Co.	Bradford, Pa.
202,577	Pumps	Jno. W. Palmer (e)	Pt. Republic, Va.
202,595	Ore Amalgamators	W. S. Shotwell	S. Francisco, Cal.
	RE-ISSUES.		
8,164	Traction Engines	Geo. Rogers	Mt. Vernon, O.
8,165	Furnaces for Roasting Pulverized Ores	Chas. Stetefeldt	S. Francisco, Cal.
8,175	Amalgamators	Joseph W. Bancroft & Co.	Philadelphia, Pa.

(a) Assignor (one half right) to Oliver L. Roberts, Thomas H. Roberts and Samuel H. Roberts, same place.
(b) Assignor to himself and Alfred Parish, same place.
(c) Assignor to Sarah J. Ashcroft, same place.
(d) Assignor to Andrew M. Price and James C. Price, same place.
(e) Assignor (one half right) to George W. Berlin, Harrisonburg, Va.

COST OF TRANSPORTING PETROLEUM.—When Mr. Reagan's bill to regulate inter-State transportation by railroad was under discussion in the House, May 9th, Mr. Thompson, of Pennsylvania, said that last season 13,000,000 barrels of oil, produced in Pennsylvania, had been shipped to the seaboard. The established rate of transportation was $1.50 per barrel, which should have given to the railroad companies $18,500,000. But instead of that, the railroad companies had actually received only $5,000,000, the other $13,500,000 having been diverted from the stockholders and from the shippers into the pockets of an unscrupulous ring. The bill proposed to abolish that system. In illustration of the magnitude of the oil interest, he said that although fifteen years ago it was an article entirely unknown to commerce, now it stood second on the list of exports (cotton being the first), and that it brought back more gold to the country than all the wheat or flour or bacon or beef or lard or lumber or tobacco or any other commodity exported.

MODERN EXPLOSIVES.*

[*Continued from page* 346.]

Now let us bear in mind that the question simply is, whether a mixture of nitro-glycerine (which is essentially a detonating explosive compound) with an igniting explosive compound will develop greater effective strength than the sum of the forces developed by the same compounds fired separately. Suppose we simply take nitro-glycerine and gunpowder—they are the leading types of the two classes. On this point, Prof. CHARLES F. CHANDLER has said : "Where gunpowder explodes in the ordinary manner, the explosion is slow and progressive, and produces a temperature much lower than that produced by nitro-glycerine ; but when gunpowder is exploded by nitro-glycerine, its explosion becomes instantaneous, it becomes detonative, it occurs at a higher temperature, produces a much larger volume of gas, and consequently develops very much greater force than when exploded alone ; consequently, the force developed by the explosion of a mixture of gunpowder and nitro-glycerine is equal to the sum of the forces developed by the nitro-glycerine and by the gunpowder when detonated, which last force is very much greater than the force of the gunpowder when exploded alone." . . . . "In the ordinary explosion of gunpowder, we have a comparatively slow combustion ; a large amount of the gunpowder escapes combustion or fails to undergo combustion, until it is too late for it to accomplish any practical result in moving a projectile or in shattering rocks. Moreover, owing to the slowness of this combustion, a lower temperature is produced, and consequently the volume of gas at the moment of explosion is much less than it would be did the explosion take place more rapidly and develop a higher temperature. When gunpowder is mixed with nitro-glycerine and exploded, the combustion is much more rapid. It is called, by investigators of explosives, a detonation, to distinguish it from an ordinary explosion. Gunpowder undergoing detonation produces a much greater effect, therefore, than when exploded by itself in the ordinary manner ; first, because it produces a much higher temperature ; second, because it is more completely burned."

The experiments of BUNSEN and SCHISCHKOFF showed that the waste in gunpowder is about 68 per cent of its own weight, only 32 per cent being utilized—that is to say, while about one third of the weight of gunpowder appears after the explosion, in the form of gas, carbonic acid, carbonic oxide, and nitrogen, about two thirds the weight appears in the form of solids, sulphate of potash, carbonate of potash, hyposulphite of potash, unchanged nitrate of potash, and sulphide of potassium—all of which compounds are solid at a red heat, but assume the form of gas at a considerably higher temperature.

This supposed utilization of the ordinarily unconsumed proportion of gunpowder, effected when it is fired in conjunction or combination with nitro-glycerine, is only one theory to account for the fact that, in combination with nitro-glycerine, gunpowder does, in spite of all theories to the contrary, develop enormously greater strength than when fired alone. Prof. CHANDLER says : "This is not the only possible explanation of the fact. It is known that very high temperature destroys chemical compounds, dissociating their elements. It may be that the temperature which prevails when gunpowder is exploded by nitro-glycerine is sufficient to separate the elements contained in the potash salts combined with it, and thus greatly increase their volume."

Mr. DRINKER then cites an elaborate series of experiments made by himself to determine the effect of these mixtures, and he concludes from these tests :

"By the ball and socket, by the mortar, and by the pressure-gauge, that they all point conclusively to the same general result—*i. e.* that a compound of nitro-glycerine with explosive salts develops far greater effective strength than the sum of the forces developed by the several constituents alone, and this excess of strength is so great that we seem justified in assuming the principle."

The lower compounds of nitro-glycerine (similar to dynamite No. 2) are known under various names, as lithofracteur, dualine, rend-rock, vulcan powder, glyxoline, Horsley's powder, etc. etc. They are all based on the general principles enunciated in the foregoing discussion of giant powder (or dynamite) No. 2.

From want of space we are here obliged to pass over Mr. DRINKER'S very full descriptions of "Lithofracteur," "Horseley's Powder," "Dualine," "Rend-rock," "Colonia Powder," "Vulcan Powder," "Mica Powder," etc., etc.

Picrates.—The picrates are salts of picric acid, $C_6H_2(NO_2)_3O$, or $C_6H_3N_3O_7$. A large number of them are known, but the potassium and ammonium salts are the only ones that have been much used in explosive preparations. Designolles' blasting powder is a mixture of potassium nitrate (saltpeter) and potassium picrate. ABEL has applied a mixture of ammonium picrate and saltpeter as a powder for bombshells. These compounds are rather applicable, if at all, to military than mining purposes, and do not concern the question of tunneling. They have been used for charging explosive bullets.

NORRBIN and OHLSSON have, however, patented a blasting powder composed of the nitrate or nitrite of ammonia, mixed intimately with a fulminate, which may be the "picrate of potash, nitro-mannite, or nitro-glycerine." It has been made in the proportion, by weight, nitrate of ammonia, 30 parts ; coal, 6 to 8 parts ; nitro-glycerine, 10 to 20 parts.

The main application of the picrate of potash as an explosive agent is rather as a fulminate than for charging proper.

Fulminates.—The fulminates are salts of fulminic acid ($C_2H_2N_2O_2$). The mercury salt is the only one of practical value. All of them are easily exploded, and some are excessively sensitive. Their explosions are very sharp, from the extreme rapidity of their decomposition ; but from the small amount of gas given off, the force exercised is not very great. Fulminating mercury ($C_2H_2N_2O_2$) explodes violently when forcibly struck, when heated to 367° Fahr. (186° C.), when touched with strong sulphuric acid or nitric acid by sparks from flint and steel, or on passing the electric

* Condensed from advance proofs of *A Treatise on Tunneling, Explosive Compounds, and Rock Drills.* By Henry S. Drinker, Mining and Civil Engineer. Published by John Wiley & Sons, New York. (Copy-righted.)

spark. When wet, it is inexplosive. Its explosive force is not much greater than that of gunpowder, but it is much more sudden in its action.

The readiness with which it may be fired make it an excellent means of causing the explosion of other substances, being essentially a detonating powder. It is, therefore, a requisite for exploding gun-cotton, nitro-glycerine and its compounds, and is a substance of special interest to the tunnel-man, as it is wholly through its agency that the great force of these high explosives is fully brought out. Properly made, fulminate fuses or exploders are perfectly safe ; but unless care is taken in the manufacture, they may be dangerous.

They are all of the same general type, and are substantially prepared by placing a small quantity of sensitive powder or priming in the cap, and in it the extremities of the wires are inserted. (At Hoosac, MOWBRAY used for sensitive powder the sulphide and phosphide of copper with chlorate of potash.)

From 15 to 25 grains of fulminating powder were added in the early types ; the spark, on passing, ignites the sensitive powder, which again fires the fulminate, and the detonation of the latter fires the charge. (These heavy fulminate charges in caps have, however, been very much lessened of late years. The commercial caps in general use may be assumed to generally contain not over from 6 to 8 grains of fulminate, and often less.)

When improperly made, fulminating caps are, of course, a fruitful source of danger and loss. The cost of exploders is but a very small item when compared with the cost of the blasting material and the expenses attending its use. Contractors and others using them on a large scale often lose heavily by their own mistaken economy or carelessness in using inferior makes. A single accident that would not have occurred if good exploders had been used, will often cost the operator much more than all the exploders he uses in a year.

MOWBRAY says, with regard to exploders, that the important points to secure in their manufacture are " uniformity of composition ; that they shall not offer too great resistance to the spark ; that they shall not be so sensitive as to explode either from the ambient electricity of the atmosphere, or from the electricity pervading a tunnel, caused by the friction of the air from the compressors when it escapes through the vulcanized rubber of the connecting pipe. This source of electricity, I believe, caused an accident March, 1873, at the Hoosac Tunnel, killing a man ; and it was followed by another similar in every respect a fortnight afterward ; for as the blaster charging the holes on the last occasion, observed : ' The moment I touched the bare wire (after the insulated portion had passed through my hand), premature explosion ensued.' It had been the custom, after withdrawing the drilling-machines, to allow a pretty free discharge of compressed air for ventilation ; and, assuming a man in his rubber boots to be an insulated jar, the hands, face, etc., would serve as collecting points, while the electricity developed by the moist vesicles of the cold, expanding air, rushing through a pipe from a reservoir charged up to fifty or sixty pounds per inch, would closely resemble the hydro-electric machine, and develop considerable electricity. The blaster, not aware that he is a walking charge of electricity, proceeds to his work, inserting cartridge after cartridge of nitro-glycerine, until he comes to the last, which is armed with the electric fuse. The moment his hand touches one of the naked wires, the current passes through the priming, and explosion follows.

" Let a blaster, before he handles these wires, invariably grasp some metal in moistened contact with the earth, or place both hands against the moist walls of the tunnel. Before taking the leading wires to the electric fuse wires, let the bare ends of the leading and return wires be brought first into contact with themselves, and then into contact with the moist surface of the tunnel, or some metal in good connection with the ground, and before inserting the armed cartridge, let him unite both of the uncovered naked wires, and touch them to a metal surface having good ground connection. Above all, do not ventilate by allowing a free blast of air through a rubber connecting pipe, until after the electric connections have been made and the blast fired."

(TO BE CONTINUED.)

EXPERIMENTS WITH A ROCK-SALT CUTTING MACHINE AT WIELICZKA, AUSTRIA.*

By A. Janota.

The working of rock salt by the ordinary method of excavating with a pick, and blasting the undercut mass, is attended with the disadvantage of making a large amount of small salt, besides giving lumps of irregular form which are inconvenient for carriage. It has therefore been considered desirable to substitute, if possible, the use of cutting machines for hand labor in the Wieliczka mines, and for this purpose experiments have been made with a machine supplied by STANEK and RESCA, of Prague. The method of working the salt at present used is to divide it into rectangular blocks by grooves about 25·6 inches deep, both at the top and bottom of the bed, and vertical cuts of the same depth from 6 to 10 feet apart. The blocks so released are brought down by wedging, and broken up, for sale, into lumps varying from 30 lbs. to 88 lbs., and in order to satisfy these conditions it was necessary to employ a " Universal" machine capable of cutting at any angle. The maximum depth of cut required is 30 inches, and the vertical distance between the roof and floor of the salt bed is 4 feet.

The cutting arrangement is similar to that of WINSTANLEY and BARKER'S coal-cutting machine, *i. e.*, a large toothed wheel carrying steel cutters on the circumference, mounted at the end of a lever so as to move radially while at the same time it is slowly rotated by a pinion ; but, unlike that machine, the construction is, by reason of the various directions in which it is required to work, exceedingly complicated, there being no less than four changes of motion between the driving axle and the cutting wheel ; the arrangements being generally similar to those of an engineer's radial drilling machine, with additional movements for varying the plane of the cutting wheel. These, together with views of the machine in the different working positions, are set out in full detail in the accompanying plates. The machine is self-acting, being moved on a line of railway by a hauling chain passing over a drum under the framing, the ends of which are made fast to fixed traverses at either end of the gallery. The driving engines have cylinders with a stroke of 7·5 and 12 inches. Compressed air is used as the motive power. With a pressure of 2·36 atmospheres, the engines make one hundred to one hundred and twenty revolutions per minute, which is reduced by the various trains of gearing wheels to eight revolutions of the cutting wheel. This has twenty teeth, and seven cutters to every four teeth, so that thirty-five blows are struck in each revolution, or two hundred and eighty per minute, against the surface of the rock. The maximum rate of movement of the machine in undercutting along a face is 4 inches per minute, the corresponding depth of cut being 0·475 inch per revolution.

The experiments were commenced in July, 1876, upon a bed of salt nearly 6·5 feet thick, but varying irregularly in dip in all directions, upon which a working face of 105 feet had been prepared. The horizontal cuts were put in from 0·4 inch to 1·2 inches above or below the actual floor or roof of the bed, partly to prevent the small salt being mixed with dirt from the rock, and partly to prevent the roof scaling into the workings, which invariably happens when the entire thickness of salt is removed.

The results of eight months' working show that the machine can cut horizontally 59 square feet per hour. When slitting vertically to a height of 5·9 feet, the reversal of the cutting-frame headstock occupies about three-quarters of an hour, so that the rate of progress is reduced to 30 or 40 square feet per hour.

The cutting points, made of cast steel, will cut a surface of 452 square feet in clean salt without requiring to be reset, and each set will bear sharpening five or six times before it is worn out, or 2712 square feet can be cut with one set of points. If, however, bands of anhydrite or sandstone are met with, the points are ground off immediately.

The average cost of cutting by the machine appears to be about 90 Kreuzers (21·6*d.*) per square meter, as against 1·15 florins (27·6*d.*) per meter paid for handwork. The principal advantage is, however, to be found in the diminished proportion of small salt to lumps, the latter being worth about 7*s.* per ton more than the former. In the ordinary way, working by hand, the percentages are lumps 75 and smalls 25, while by the machine 83 per cent of lumps and 17 of smalls are obtained.

Bessemer steel is employed for all the moving parts of the machine, except the cutting wheel and driving pinion, which are of crucible steel. The cost is about £430, and that of the air-compressing arrangements, which are designed to drive other machines as well, £990.

H. B.

* Abstract of a paper in the *Oesterreichische Zeitschrift für Berg- und Hüttenwesen*, vol. xxv., p. 277. From the Minutes and Proceedings of the Institution of Civil Engineers of London, edited by James Forrest, Secretary.

MINING NEWS.

Special Correspondence of the Engineering and Mining Journal.

COLORADO.

GILPIN COUNTY.

A very rich vein of ore is paying largely in the Hidden Treasure mine, Quartz Hill. The 500 and 550 foot levels have lately increased their daily yield from 24 to 35 tons of mill ore, yielding from $12 to $17 per ton. Besides this, over one ton of ore is sold daily to the smelters at from $50 to $125 per ton. Twenty men are employed. What is called the Hidden Treasure embraces 300 feet on the west end of the California. The same vein west of that property is called the Indiana, which has lately been secured by Fagan in the Forks and West Kansas combination. The parties operating the Hidden Treasure also lease the old Harper or Roworth claim on the California. The remainder of the latter lode (900 feet) as far east as the Gardner is operated and owned by Joseph Standley, who has carried a shaft down to a depth of 620 feet. But little pay is in sight yet. Among the lately reopened mines, the Saratoga, Topeka, and Missouri are paying handsomely.

The Dallas and Pyrennes mines are two of the most profitable and apparently valuable properties among the less developed veins of Gilpin County. The contractors on the Dallas finished stoping 14⅓ fathoms of ground May 15th, which gave 30 cords or 240 tons of ore, milling from 4 to 8 ounces per cord, or from $10 to $20 per ton. Parts of the mine are now being securely timbered, and contracts are being carried forward for 20 feet of drifting, 20 feet of sinking and 8 fathoms of stoping, besides other lesser work. Several rich discoveries are reported in the Gold Dirt district. The new Smith quartz mill will be started up again in one week. The Missouri lode is worked by two parties owning the property, and by four lessees. The shafts are from 50 to 200 feet deep; yield about 15 tons daily, besides smelting ore, all paying good profits.

BOULDER COUNTY.

Boulder's shipments last week included $3000 worth of silver from the Caribou mine and mill, and $1000 in gold, one half of which came from the Golden Age mine. The Columbia No. 8 claim will soon have 20 men at work. The Corning Tunnel mill is crowded with ore. The Black Cloud mill is running with a three-months' supply of ore outside of its mine. It contains two Frue Vanner concentrators, also rolls and Collom jigs.

CLEAR CREEK COUNTY.

The Joe Reynolds No. 3, discovered late last winter, is being got into producing shape. It is said to show a three-foot vein of ore worth $500 per ton, and is claimed to be the best property in the district. It is owned by General Gilbert and (Diamond) Joe Reynolds, the Chicago grain dealer, who own the Free America and half of the Boulder Nest. The time of the lessees having expired, the owners will work the latter lode hereafter. The Barrett shaft is 275 feet deep. The yield of the Boulder Nest since opened—8½ months—has exceeded $260,000. The Free America shaft is 291 feet deep, and sinking has been stopped while a pump and another engine (24 horse-power) is being put in. The three lower lodes are respectively 180 feet, 200 feet, and 280 feet below the surface, showing from 4 to 12 inches of ore, worth from $180 to $250 per ton. Twenty-eight men are employed.

SAN JUAN.

The Ocean Wave smelting works, at Lake City, are being enlarged, and a Frue Vanner concentrating mill, with rolls and jigs, is being added. Work can not be resumed before July 1st.

During the past winter the silver mines of San Juan County have employed about 500 men who have taken out over 2000 tons of ore ready for shipment. This section embraces Sultan and Hazelton Mountains, Cunningham Gulch, Animas Forks, Mineral City and Cement Creek, for all of which Silverton is the business and ore-reducing center. Most of the mining done last winter was development, not more than ten stopes being worked. The smelting works will soon resume business, and more miners will be at work on the mountain sides than ever before.

The best developed vein on Hazelton Mountain is the Aspen, opened 300 feet deep, with 30 men at work, 300 tons of ore out and 1000 tons in sight in the mine; 60 men will be employed hereafter. The Ingersoll tunnel on the same mountain is 1200 feet long and has cut several veins, one of which, the Victor, has yielded

200 tons of valuable ore in the past few months, and is now turning out three tons daily. Greene & Co.'s Silverton smelter is having its capacity increased to 30 tons daily. A new water-jacket blast furnace is being put in. This district has now obtained such a start that it has probably had its last winter snow embargo, and the mountain roads are likely to be kept open at all seasons. Hereafter all important points in the San Juan region are to be favored with a daily mail, carried over the snow-clad ranges in some localities by men with whom snow-shoes were a necessity in the winter months. Up to the present time Ouray had only a weekly mail. It will soon have a daily line.

In San Miguel district are a large number of valuable silver veins, most of which will be worked this summer. Among them are the Nettie, Osceola, Alta, Mountain Quail, Nevada, Queen of the Mountains, Straatsburg, Yellow Mountain, and Mount Carmel. The Oriental and Pandora have been intersected by a tunnel 150 feet long, where a drift is being run on the vein 100 feet each way. The Turkey Creek lode shows much free gold, and gives high assays in both gold and silver. Gulch mining has begun on the San Miguel and tributaries.

COAL MINING.

Two 15-inch cylinder engines combining 180 horse-power are being put up for hoisting purposes on Welch's coal mine on the line of the Colorado Central Railway. When this machinery is in working order, 150 tons of coal can be raised daily, and when the veins are better developed 500 tons daily can be raised. The Golden, Ralston, and Marshall coal banks are producing more extensively than ever before. COIN.

MISSOURI.

Big Muddy and Indiana coal is still sold at 12½ cents per bushel in St. Louis. The Belleville miners have not yet returned to work. Last Sunday they swelled the ranks of the Socialists' Procession, 800 strong.

A new building limestone-magnesian marble quarry has been opened 100 miles from St. Louis. It is claimed to be the best building rock of the State. The citizens of Frederickstown, Madison County, contemplate building a bridge over the St. Francis River, at the Silver mine.

The Frederickstown *Plaindealer* says: "Raw minerals are taken out of almost every hill in the county (Madison) and sent to assayers.

Simmons Mountain iron ore sells at $5; Iron Mountain at $5.50 per ton. The proprietors say that they can not be expected to sell it lower, as they can get these prices from Pittsburg firms.

It is claimed that St. Louis would be able to compete with Pittsburg in making pig-iron if she could get good coal at 6 cents a bushel.

The Cox diggings in Madison County, showing a similar formation to that of Mine La Motte, but as yet with undetermined prospects, are held at one month's option by St. Louis capitalists, who have begun prospecting. They expect to strike it big, but deserve disappointment for entering the contract under such terms.

The Cheltenham Fire Clay Mines and Brick Works are doing well, although the collapse of Missouri pig-iron manufacture has withdrawn their best customers from the market. The competition now prevailing among them drives close bargains, and the business is not so remunerative as it was. The manufacture of retorts, pipes, etc., has considerably increased. The Cheltenham Company, Evens & Howard, have kept up their old reputation, and are shipping to all points of the compass.

Mr. Greene, of the La Clede Company is building one Siemens gas furnace and eight producers.

There are rumors of the Vulcan Iron Works preparing for action. It would be a blessing to poor Carondelet.

The pig-iron trade is improving. Spooner & Collins shipped in one week in the beginning of this month, over a hundred cars of Tennessee, Hanging Rock, Southern and Missouri iron. The La Clede rolling mills are running full capacity; the Helmbacher and McDonald forges are making axles and special size iron; the St. Louis Bolt and Iron Company and Harrison Wire Works run full, the latter putting in a new mill to be ready by June 1st.

Spiegel iron from Georgia is just coming into use for dies and stamps. It contains 10 per cent of manganese; is very hard and solid, with scracely a grain perceptible.

About half a dozen prominent and wealthy citizens largely interested in mining stock and mines are regular readers of the JOURNAL, at the office of another prominent party at St. Louis. It is a striking evidence of the progress of *commonism*, and heartily appreciated by the canvassing agents.

The JOURNAL is not to be found at the reading-room of the Merchants' Exchange. It is expected to be sent *gratis*.

LEAD PROSPECTS.

We are promised 20,000 tons of lead from one mine in Colorado, and the price of pig-lead drops one eighth. We were promised destruction from Utah. We still exist, and Utah lead mines labor under greater difficulties than ours. The production in the Mississippi Valley States is, on the whole, considerably diminished, and the export of far West production to China and Japan gradually increasing. There is a perceptible improvement of manufacture and trade matters, and the white-lead manufacturers have no stock of pig-lead on hand. At the present time there is hardly enough pig-lead left in the market, for the actual wants of the corroders, if one or other concern thinks it advisable to purchase a large quantity at present quotation. But they all buy by one or two car-loads if not by the pig. They must be influenced by the new wonders of Colorado and the 20,000 tons from Lake County. When they come to market, they will *tell*, no doubt; but why make them tell *now*, at the expense of the present production? "Sufficient for the day is the evil thereof."

ILLINOIS.

The Green Mound Coal Company, the Northwestern Mining Company, Kuntz, Bodmann & Co., and John Kloess, proprietors of coal mines near Belleville, offered 2½ cents per bushel, delivered from the mine. The miners at first intended to recommence work, but reconsidered. To-day arrives the news of the destruction, by incendiaries, of considerable property, chiefly belonging to the Green Mound Company. B.

CALIFORNIA.

THE MODOC CONSOLIDATED MINE.

The Coso *Mining News* of the 17th inst. says of this mine: "Both furnaces are now running to perfection and turning out 200 bars of bullion every twenty-four hours, the bars weighing an average of eighty-five pounds each. Thirty-eight tons of ore are run through each twenty-four hours. In starting No. 1 furnace a little trouble was experienced, the foundation being a little wet and some leakage from a tuyere iron causing a cooling of the slag, but not sufficient to create a bank. Both furnaces are now thoroughly warmed up and running nicely. Mr. Guptill expects to ship 10 tons daily, and undoubtedly that amount will be increased, as at present he is running on the hardest ores on the dump to smelt. The mines are looking well and yielding the usual amount of ore, more than sufficient to keep the furnaces supplied."

THE IDAHO GOLD MINE.

The Foothill *Tidings* says of this mine: "On the tenth level, several hundred feet east of the shaft, a large chamber is being excavated, in which a steam-engine, to be run by compressed air, is to be stationed. From this point a large winze is to be sunk, through which the mine will hereafter be developed below the tenth level. This chamber is not yet ready for the engine, but soon will be. As the ledge at the bottom is now showing larger than formerly, it is found necessary to increase the crushing capacity of the mill, and in addition to the present 35 stamps 15 more are to be added, requiring the putting in of an extra battery foundation and an additional boiler to the mill. Another cage will also be put in the large four-compartment shaft, which will give three cage compartments. As the milling and hoisting capacity of the mine is thus increased, more water will be required for the mill, which renders it necessary to enlarge the company's ditch to increase the supply. All these improvements and enlargements are consequent upon the increased power and production of the mine, and it will take about three months before they are all completed. With the increased power the mine can be worked to the depth of 2000 feet or more; and with 50 stamps the reduction works will be ample for all purposes during the life of the mine. More power drills will also be used in order to supply the increased number of stamps. These improvements are all evidence of the great producing capacity of the mine, and of its lasting character. It is California's great gold mine; has paid 104 regular dividends, amounting to over $2,300,000."

MONTANA.

From the Helena *Independent* of the 9th inst. we take the following:

"*Silver Creek Mines.*—Sinking on the Penobscot still continues. There is no perceptible change in the character of the ore. The present depth of the shaft is 80 feet. One level of forty feet has also been run and in the face the ore remains unchanged and the lode still retains its usual width—15 feet.

"The Whippoorwill lode is being developed rapidly. The lode is five feet in width, at a depth of 110 feet. Levels are being run from the bottom, and the ore obtained is of a very high grade.

"The Black Hawk has a shaft down thirty feet. The ore prospects well, and the indications are that it will develop into a first-class mine.

"On the Blue Bird levels are being run, and the ore taken out is of high grade. There is considerable work being done on other mines to represent them, and some prospecting is going on. The snow has mostly disappeared, and as soon as the ground is bare the country will be alive with prospectors.

"Five men are now employed on the Belmont mine, and others will be set at work next week. With that force the company will be enabled to keep its 10-stamp mill in constant operation. There is now on the dump at this mine about 1400 tons of good milling ore. The present depth attained in the mine is one hundred and forty feet, but the new tunnel which is being run will tap it at a depth of four hundred feet.

"Mining interests in and around Radersburg look very flattering. Placer mining has begun, and Billy Quinn has his flumes, ditches and reservoirs in excellent repair. Messrs. Keating and Blacker have commenced working ore. They have a large quantity on the dump. These gentlemen have spent a large sum of money in erecting furnaces in which to reduce the rebellious ores, which predominate in their mine, and feel confident of success. Their mine is in such a shape that they can take out rapidly and cheaply a sufficient quantity to keep all their machinery in operation. Mr. Blacker is running his 15-stamp mill and John Keating is building a mill of like capacity, to be driven by water power, water being obtainable from Quinn's ditch for the purpose. If their process proves as successful as it now promises, the Ironclad mine, owned by the Messrs. Nave will be worked shortly. This mine contains a body of black sulphuret ores from eighteen inches to six feet in width, which is very rich."

NEVADA.

THE COMSTOCK.

From the mining summary in the Gold Hill *News* of the 15th inst.:

"In almost every deep level recently opened the old Comstock vein is showing a decided improvement; the barren break and mixture of extraneous matter in the vein proper is being passed, and in all the deep mines the quartz is showing itself again in solid concentrated bodies, with every feature pointing to the resumption of the rich deposits found nearer the surface. This is being demonstrated particularly in the Ophir, Savage, Sierra Nevada, Union Consolidated, Best & Belcher, Imperial, Alta, Bullion and Belcher.

"Within the past few days the developments in the Sierra Nevada on the 2000 level have shown a change in the vein formation that warrants the strongest hopes of a development of paying ore at no distant day, and a new lease of life to the whole north end.

"The ore in the winze, below the 1900 level of Ophir, is widening to the westward and is of a fine quality, being about $60 milling ore, and it is now a settled conclusion that the 2000 and 2100 levels will develop a paying mine.

"In cutting out the 1900 station in the Best & Belcher joint winze on the Consolidated Virginia south line a fine vein of ore-bearing quartz has been opened upon where it was not looked for, while for the past three days the north drift on the 1600 level of the Union Consolidated has been passing through a splendid body of quartz and low-grade ore, in a portion of the vein where nothing of value was ever found before.

"During the past week the east drift on the 1640 level of the Savage has been advanced through the quartz and ore recently struck a distance of 25 feet, showing the quartz to be of a splendid character, the ore mostly low grade, but showing many spots of rich sulphurets and chloride mixed through it. This is a development of more than usual encouragement, as the vein is proven beyond a doubt to not only have rich ore-bearing qualities, but to have width and strength as well.

"In the Julia the new lift-pumps at the 2000 station will be running by to-morrow afternoon, when the water will be speedily drained so as to admit of cross-cutting and a rapid development of the ore recently penetrated to the eastward by the diamond drills.

"Bullion and Imperial both show a much more concentrated quartz formation below the 2000 levels than for years past, while in Alta the indications all point to a valuable mine on the 1300 and 1400 levels. New stations have just been opened at the 2300 levels of both the Crown Point and Belcher mines, and with the splendid ledge formation already shown on the 2160 level of the Belcher, there is a very good prospect for that mine to again wheel into line as one of the ore producers and paying mines of the Comstock. Taken altogether, the outlook has any thing but the discouraging aspect that the bears, the sworn enemies of the mining interests, would have the public believe.

"The Sutro Tunnel header continues in hot and dry Comstock formation, and is pushing ahead at the rate of between 50 and 60 feet per week. Total length of tunnel last evening, 19,648 feet."

THE EUREKA CONSOLIDATED.

The Superintendent's letter, under date of the 11th inst., is as follows:

"The ore bodies on the 8th level show considerable improvement. The 7th, 9th, 10th, and 11th levels continue to look well, showing no particular change.

"The prospecting drift on the 5th level has been advanced 25 feet, and is still in hard limestone.

"The 7th level, west drift from No. 1 cross-cut, has been run 10 feet in broken limestone. The east drift in the level has been run 24 feet. Have discontinued work on face of drift, and raised 15 feet in low grade ore.

"The east drift on the 8th level has been run 24 feet in low-grade ore, and a winze sunk 23 feet in good ore.

"The incline from the 9th level is down 30 feet below the 11th level. Ground is dry and favorable for sinking.

"The west drift from cross-cut No. 2 has been advanced in stained limestone.

"East drift from cross-cut has been advanced 15 feet in stained limestone. Will stop work in the face of this drift and cross-cut toward hanging wall.

"North cross-cut on the eleventh level has been run 6 feet in stained limestone, with good indications for ore.

"No. 2 furnace was run down on the 7th, and is now undergoing repairs, and will be started up again next Tuesday.

"The new copper furnace was started on the 9th. It has not been running long enough to form any opinion of its merits.

"The other furnaces have been producing the usual amount of bullion, of a little higher grade than last week."

"*The Wilson Mining District* is a new one, the first discoveries having been made last August. It is situated about 35 miles from Aurora, in the East Walker River Range, Esmeralda County, Nevada, the mines lying within one and a half miles of East Walker River. A correspondent of the Esmeralda *Herald*, writing from Gold Hill, says: 'The country rock in which the mines are situated is soft granite, extending about eight miles in length and three miles in width. The average of the mines opened run in a north and south direction with a dip west of about fifteen degrees, and carry free milling ore, principally gold. Eight or nine miners have been there since August last working patiently, developing and securing their claims, which have but little attention from the outside. Governor Blaisdell is largely interested in the district, and Virginia City miners are being attracted thither."

UTAH.

ONTARIO SILVER MINING COMPANY.

The superintendent of the Ontario Silver Mining Company, in his report for the week ending May 14th, says: "The mine is showing as well as usual throughout the stopes. The winze in the 500-foot level is raised 73 feet through the best body of ore we have yet found in the mine. The new shaft is progressing very favorably, and is now down 93 feet from the surface. The mill has not done so well the past week in consequence of the flues of furnace and dry kiln being nearly full of flue dust, which may be cleared out soon."

From the *Salt Lake Tribune*, of the 18th inst., we take the following notes:

THE FRISCO DISTRICT.

The outlook for all kinds of business in this part of Utah for the coming season are very encouraging. Both smelters have continued to run right along, and are to-day doing better than ever. As soon as hoisting works are erected upon the Horn Silver mine, the smelting capacity of the smelters will be increased threefold.

The ore bodies in the Horn Silver mine still show no signs of weakening, but continue to improve in richness.

The Frisco Reduction works (leaching) have shipped lately three very fine silver bricks, one of them valued at over $1100. Their roasting ovens are fast approaching completion.

The Albion Reduction works (leaching) have been leased by Flenicke & Sparkhule, and are now in operation.

The Germania works (leaching), by the above parties, are still in course of construction.

The topic of interest is the coming of that narrow-gauge railroad to this place; also the building of a tramway to the Cave mine from here, by W. S. Godbe & Co.

Prospectors are out in the surrounding hills and mountains with strong hopes of striking another bonanza. C. G. Lober, of the Gray Eagle Silver Mining Company, is meeting with good success, having struck a body of very high grade ore.

THE COTTONWOOD.

A new discovery has been made in this district named the Fairview. The fortunate locators have struck a vein of between three and four feet in width, the ore from which averages 200 ounces silver, sixty per cent lead, and a few dollars in gold. They have on the dump, as the result of a few days' work, $1500 worth of ore.

The mine was discovered by John W. Howell, and is owned by him, in company with Beaman, Summers and Crow.

The ledge has already been traced over 2000 feet, with very encouraging results. It is a contact vein, and experience has proved that this class of mines are generally permanent.

NOTES.

CANADIAN LEAD SHIPMENTS.—The Frontenac Lead Smelting Works at Kingston have just shipped, as the product of a recent smelting, four car-loads of lead, which is said to be of high quality.

ENGLISH COAL AS BALLAST.—We note the statement that several cargoes of English gas-coal for the Northern Liberties Gas Works, Philadelphia, have arrived at that port from Newcastle, Eng. These vessels come for petroleum or grain, and bring coal cargoes over this way as ballast.

OHIO GOLD DISCOVERY.—Gold is reported to have been found on Salt Creek, eight miles below Adelphi, in paying quantities, and parties are engaged in washing for it. There is considerable local excitement over the discovery in that locality.

CELINA, VAN WERT, AND (OHIO) STATE LINE RAILROAD.—We note the recent organization of a company under the above name. The road is to connect with the coal line roads leading from the best coal mines in Ohio, and from this point extend through the timber regions of the Northwest.

MEETINGS OF SOCIETIES.—The tenth annual convention of the American Society of Civil Engineers will be held at Boston, beginning June 18th.

The American Association for the Advancement of Science will meet at St. Louis on Wednesday, Aug. 21st. Its headquarters will be at the Lindell Hotel.

GOLD DISCOVERY IN VERMONT.—We note the following dispatch under date of North Troy, Vt., May 20th: "The gold discovery near South Troy is attracting much attention. The owners are working the find as fast as possible. Washings thus far about pay expenses."

THE COLORADO RAILROADS.—The sum of the various railway extensions in Colorado this year will probably reach 500 miles, which, added to the 1084 miles now in operation, gives the State 1584 miles of railway, affording access to all the well-settled towns and districts.

AUSTRIAN TELEGRAPHY.—Two Austrian telegraph officials have invented what they contend is an improvement upon the quadruplex telegraph. They style their invention the multiplex telegraph. They make use of the Hughes perfection apparatus. Four of the new apparatus can, it is stated, forward 240 telegrams in an hour.—*Engineering.*

IMPORTANT ORDER FOR RAILROAD SUPPLIES FROM PERU.—The Philadelphia *North American* says orders of the most important character have just been received by a firm in that city from the United States Commission in Peru, South America, embracing among other large specifications the entire equipment of a narrow-gauge railway from Truxillo to Salaverry, with rolling stock complete; also estimates for wharves, iron buildings, etc.

WATER WORKS FOR CENTRAL CITY, COLORADO.—A company has recently been organized in Central City, Col., with a capital stock of $30,000. The company declares its intention to supply Central City, in Gilpin County, with water for fire, domestic, mechanical and agricultural purposes; the packing and sale of ice, and the purchase and construction of all necessary reservoirs, flumes, pipes, and other appliances necessary to carry into effect the objects of the company.

ROCHESTER STATE LINE RAILROAD.—The formal opening of this road took place on the 15th inst. amid great eclat. The new road, just completed after a lapse of nine years from its inception, cuts the Erie at Gainesville and connects with it again at Salamanca, where it also establishes a connection with the Atlantic and Great Western. It will open up the coal and oil fields of Pennsylvania to Rochester enterprise and give numerous villages of Western New York direct railroad communication with the great business centers.

THE CEMENT BEDS OF ORANGE AND ULSTER COUNTIES, N. Y.—A company of New York City and Ultster County capitalists has been organized to work the cement beds and quarry located near the Orange and Ulster County line at Hampton, seven miles north of Newburg. The cement vein averages 30 feet in depth, and is classed as "black and white Portland." The quarry is extensive, and will furnish the bulk of the stone for the Poughkeepsie Bridge caissons. From $300,000 to $500,000 are invested in the new enterprise.

THE ST. GOTHARD TUNNEL.—A recent report of the inspector of the St. Gothard Tunnel states that the irregular character of the formations pierced by the tunnel has entirely ceased, and that the work is now progressing through uniform regular strata. On the south side the boring progresses at the rate of 10 ft. daily through gneiss. The rate is somewhat less on the north side, where the tunnel is not yet out of the serpentine. The thickness of this stratum of serpentine now being pierced is already double that estimated by geologists from the surface indications.—*Engineer.*

LEAD DISCOVERY IN KENTUCKY.—The Joplin *Herald* of the 19th inst. says:

"Mr. J. M. Hinton, one of our successful miners, has just returned from the vicinity of Frankfort, Ky., where he has been prospecting for lead. He reports the prospect good, and that he has secured considerable territory by lease.

"Mr. Hinton has examined the territory sufficiently to feel that lead exists in paying quantities. From the formation in which it is found, mining will be expensive. It lies near the Kentucky River, so that freight expenses will be merely nominal. It will be a new thing for the old blue-grass State to take rank among the mineral-producing regions of the country."

ATCHISON, TOPEKA AND SANTA FE R. R.—Contracts have been let on the New Mexico extension for the work on the tunnel on Raton mountain, with approaches; one hundred and ten miles of track-laying from La Junta to Clifton, New Mexico, and grading of various sections. These contracts aggregate in value one and a half million dollars, and provide for the completion of the road to Trinidad by August 26th; summit of Raton mountain, November 1st, and Clifton, New Mexico, February 1st. Contracts have been made for 305,000 ties, and the Pueblo rolling mills have a contract for one thousand tons of iron for the road. Preparations are under way for letting the contracts on the Leadville extension. The line is located from Pueblo to South Arkansas, and upward of six hundred men are at work upon it.

THE FLUOR-SPAR DEPOSITS OF THE MENOMINEE IRON REGION.—The Portage Lake *Mining Gazette* of the 16th inst. says: "A pink fluor-spar, which abounds in the Menominee iron district, when held between the light of a lamp and the eyes turns to a deep green and emits prismatic scintillations containing all the colors of a rainbow. A company is being organized to manufacture lamp shades and other ornamental work from this mineral. An analysis shows the Menominee fluor-spar to possess a specific gravity of 3·15 and to contain 48 per cent of fluorine and 52 per cent of calcium. The discovery is creating great excitement, especially among scientific men in the iron region, who supposed, until lately, that fluor-spar occurred only in the 'primaries' and in the 'secondaries,' up to the coal measures."

DEATH OF A WELL-KNOWN LOCOMOTIVE ENGINEER.—Mr. Albert Borsig, the well-known locomotive engineer of Berlin, died on the 10th of April at the early age of forty-nine. The works were founded by his father in 1837, and have since the beginning turned out over 3600 locomotives for Germany, Russia, Sweden, Denmark, Holland, Austria, and for the Dutch colonies. Mr. Borsig was one of the largest employers of labor, the number of his workmen at his Berlin works and at his iron and steel works and coal mines in Silesia exceeding 10,000. How successfully the works have been carried on is shown by the fact that Mr. Borsig's father began work with a capital of £1500 lent to him by a Berlin tradesman, and that the son died one of the wealthiest men in Germany, having left property worth about three millions sterling. Under the will of the late Mr. Borsig the works will be conducted by a board of trustees until his children—the oldest boy being only eleven years—become of age.—*Engineer.*

FATAL EXPLOSION IN THE SYDNEY (NOVA SCOTIA) COAL MINES.—HALIFAX, May 21.—An explosion of gas occurred this morning in the new wing of the old Sydney Mines. Six men have been taken out dead, among them being Mr. Greenwell, the chief overseer. It is thought that all of the men are now out of the pit. Every thing possible is being done for the relief of the injured. Manager Brown was among the first to go into the pit to relieve the sufferers. The following are the names of the killed: Murdoch McDonald, Rory McNeil, Robert Hutchins, Robert Milburn, Overman Greenwell (chief), William Cram (assistant).

The first persons to enter the mine after the explosion were three brothers, named Sullivan, who succeeded in rescuing thirteen of the cutters who were overcome by the gas. They were unconscious for some time, but are all slowly recovering. Sixteen pairs of cutters were at work here. In the South Side Mine a large number of men were at work, but all escaped uninjured. One of the Sullivans was prostrated while searching for the dead, but he was rescued by his brothers. The works will be idle, it is supposed, for a few days only.

CHEMICAL PROCESS FOR COVERING ZINC WITH THE MOST BRILLIANTLY-COLORED COATINGS.—The articles of zinc are first brightened by vigorous scouring with quartz sand, moistened with dilute muriatic acid, putting them quickly in water and then wiping dry most carefully with white blotting paper. To insure success, however, it is necessary to employ zinc as free as possible from lead, and to have it bright like a mirror. When these conditions are fulfilled, the metal may be coated with a variety of most beautiful colors by immersion in a solution of alkaline tartrate of copper for a shorter or longer interval of time, depending on the color that is desired. The solution is made by dissolving three parts of air-dried tartrate of copper in caustic soda lye containing four parts of hydrate of soda to forty-eight parts of water. If the zinc is dipped in that liquid at a temperature of 10° Cels. (=40° Fahr.), it appears violet after two minutes, takes a splendid dark-brown in three minutes, changes to green in four and a half, to golden-yellow in six and a half, and to purple in eight and a half minutes. If the liquid be employed at another temperature than that given above, the appearance of the different colors will also vary in other short periods of time. If the zinc be left longer than eight and a half minutes in the copper liquid at 10° C., the last-mentioned purple color disappears, being replaced by one or another of the preceding hues, depending on the time; but then they are never of the same brilliancy, and will continually diminish, until after some days' immersion the zinc is covered with a miscolored suboxide of copper. For this reason the articles are removed from the bath as soon as the desired color is fairly developed, and rinsed immediately in water. After careful drying, the metal may be coated with a good varnish, to make the colors more durable.—SILVERING AND GILDING ZINC: A direct silvering of zinc, according to Ebermayer, is not practicable, for although the zinc covers itself speedily and nicely with silver as well as with gold, yet this coating becomes dull and unseemly after a short time. The cause of this may be that the covering is too thin to perfectly cover the zinc. There is no other means left, therefore, but plating the metal first with brass or copper. It not being sufficient, however, to merely cover the zinc by simple immersion, it is necessary to produce a good, durable precipitate, which may be accomplished by using the galvanic battery and a solution containing cyanide of potassium. A process has of late been published in Germany to copper-plate zinc articles by simply suspending them on zinc wires in a solution of blue vitriol and caustic potash, which, to prevent a precipitate being thrown down, is mixed with tartaric acid or glycerine. Ebermayer further remarks that all articles made of sheet zinc are better adapted for plating with brass than castings, because the latter, if not most carefully handled, are liable to be disfigured with black spots.—*Communicated by Dr. L. Stille, No. 85 Chrystie street.*

STATISTICS OF COAL PRODUCTION.

This is the only Report published that gives full and accurate returns of the production of our Anthracite mines.

Comparative statement for the week ending May 18, and years from January 1:

TONS OF 2240 LB.	1878.		1877.	
	Week.	Year.	Week.	Year.
Wyoming Region.				
D. & H. Canal Co..	27,788	739,652	48,720	795,719
D. L. & W. RR. Co.*	.....	588,382	57,824	786,953
Penn. Coal Co.....	21,246	190,566	24,582	368,972
L. V. RR. Co.....	27,848	263,430	22,139	374,239
P. & N. Y. RR. Co..	745	9,380	1,262	18,023
C. RR. of N. J.....	12,995	297,306	39,844	540,837
Penn. Canal Co....	13,957	56,504	13,623	78,021
	104,579	2,145,220	207,994	2,962,764
Lehigh Region.				
L. V. RR. Co.....	46,925	760,074	93,370	1,041,234
C. RR. of N. J.....	31,116	376,656	35,446	541,293
D. H. & W. B. RR..	171	7,496	294	6,197
	78,212	1,144,226	129,110	1,588,724
Schuylkill Region.				
P. & R. RR. Co....	191,316	1,369,056	160,607	1,986,319
Shamokin & Lykens Val....	16,455	188,255	19,299	195,589
	207,771	1,557,311	179,906	2,181,908
Sullivan Region.				
Sul. & Erie RR. Co.	825	11,277	262	4,757
Total.....	391,387	4,858,034	517,272	6,738,153
Increase.....	.....	.....	.....	.....
Decrease.....	125,885	1,880,119	.....	.....

* This report was not received this week.

The above table does not include the amount of coal consumed and sold at the mines, which is about five per cent of the whole production.

Receipts and shipments of coal at Chicago Ill., for the week ending May 18, and year from January 1.

	Week. Tons.	Year Tons.
Receipts.....	25,664	448,374
Shipments.....	2,399	67,572

Belvidere Delaware Railroad Report for week ending May 18:

	Week.	Year. 1878.	Year. 1877.
Coal for shipment at Coal Port (Trenton).....	218	218	6,845
Coal for shipment at South Amboy	6,554	172,612	244,670
Coal for distribution.....	2,937	60,567	67,216
Coal for Company's use.....	956	30,923	29,459

Receipts of Coal at Boston, for the week ending May 17 and years from January 1:

TONS OF 2240 LB.	1878.		1877.	
	Week.	Year.	Week.	Year.
From Alexandria and Georgetown.....	1,780	5,360	1,140	7,808
Philadelphia.....	16,731	149,500	14,764	165,858
Baltimore.....	7,316	45,658	400	38,106
Other places.....	6,736	85,003	6,269	82,765
Great Britain	.....	13,425	490	1,197
Nova Scotia.....	281	2,402	.....	3,669
Total.....	32,844	302,348	23,063	297,403

The receipts of coal at Rondout, N. Y., by the Delaware & Hudson Canal for the five days ending May 23 were 172 boats, carrying 21,844 tons.

The shipments of coal at Cleveland, Ohio, for the week ending May 19 were as follows: Shipped coastwise, 2,263 tons; total for year, 37,868 tons; foreign shipments, 11,833 tons; total for year, 15,827. Total of coastwise and foreign shipments for week, 14,096; for year. 53,155.

Perth Amboy Business:

	Tons.
Received for the week..	16,243
Shipped for the week.....	17,046
On hand May 18.....	57,771

The decrease of shipments of Cumberland Coal over the Cumberland Branch, and Cumberland and Pennsylvania Railroads amounts to 32,461 tons as compared with the corresponding period in 1877.

The Production of Bituminous Coal for the week ending May 18, was as follows:

Tons of 2,000 lb., unless otherwise designated.

	Week. Tons.	Year. Tons.
Cumberland Region, Md.		
Tons of 2,240 lb.....	38,633	418,867
Barclay Region, Pa.		
Barclay R. R., tons of 2,240 lbs.....	4,899	114,940
Broad Top Region, Pa.		
Huntingdon and Broad Top R. R.....	2,598	51,694
*East Broad Top.....	1,427	24,911
Clearfield Region, Pa.		
*Snow Shoe	269	10,786
*Tyrone and Clearfield.....	19,003	425,811
Allegheny Region, Pa.		
*Pennsylvania R. R	4,082	72,138
Pittsburgh Region, Pa.		
*West Penn R. R.....	3,751	78,081
*Southwest Penn. R. R.....	386	10,519
*Penn & Westmoreland gas coal, Pa. R. R.....	6,619	269,069
*Pennsylvania R. R.....	12,572	143,875

*For the week ending May 14.

The Production of Coke for the week ending May 14:

Tons of 2000 lbs.	Week.	Year.
West Penn R. R.....	2,065	28,540
Southwest Penn. R. R.....	14,838	286,367
Penn. & Westmoreland Region, Pa. R. R.	1,500	23,339
Pittsburg, Penn. R. R.....	2,100	32,513
Total.....	20,503	370,759

COAL TRADE REVIEW.

NEW YORK, Friday Evening, May 24, 1878.

Anthracite.

The event of the week has been the meeting of the Anthracite Board of Control in this city on Tuesday, when the tonnage and prices for June were established. It was determined to make the total tonnage to July 1st, 7,000,000 tons, and to have each company ship its full quota up to that time. To accomplish this the following allotments were made:

	Tons.
Philadelphia & Reading Railroad Company.....	633,215
Lehigh Valley Railroad Company.....	304,159
Central Railroad Company.....	219,143
Delaware, Lackawanna & Western Railroad Co..	294,682
Delaware & Hudson Canal Company.....	144,785
Pennsylvania Railroad Company.....	125,134
Pennsylvania Coal Company.....	108,540
Total.....	1,733,658

At the same time the question of advancing prices was discussed with the result of most of the companies fixing upon a rise of from 10 to 25c. per ton. To this, however, the Lehigh Valley Coal Company, which is the Lehigh Valley Railroad Company's coal interest, disagreed and refused to make any advance. It gives two reasons for this: First, that it desires to hold to the prices named; and, second, that in the Lehigh region wages are paid upon a basis, not of prices actually received, but upon the circular rates announced.

The action of this meeting will be a great trial, if not disastrous, to the coal combination. The resolution to make the shipments 7,000,000 tons to July 1st, can not be other than a desire with the companies to make a showing on paper for the first six months. The condition of trade does not warrant the allotment, and the consequence will be that there will be in market fully 500,000 tons more than there should be, and we shall be surprised if there is not considerable under-cutting in the efforts of some of the companies to dispose of their products. Then, although the Lehigh Valley Coal Co.'s product is not an enormous quantity, yet for it to be known to be selling its coal for less than the other companies must make it a disturbing element. To this will also be added the competition between coals shipped west through the Erie Canal and coals shipped from Buffalo. With all these causes at work it will be strange if other detrimental influences should not be developed. To the Lehigh Valley R.R. Co. is attributed the failure of the combination in 1876, although there were other causes having a far more important influence, although not acknowledged at the time. If a rupture were to occur this year, it is very probable that this company would be considered the offender, although it would not be more so than in 1876. A large business and high prices would make combination a success; but they do not appear to go together, and unless they can be made to do so, of what value is combination?

The Delaware & Hudson Canal Company quotes the following prices, f. o. b. Rondout, the towing to and from New York harbor to Rondout and return at the expense of the company:

Lump.....	$3.60	Egg	$3.75
Steamer.....	3.60	Stove.....	4.10
Grate.....	3.60	Chestnut.....	3.50

The Pennsylvania Coal Company quotes, f. o. b. Newburg (50c. per ton additional for freight and delivery to carts at New York or Brooklyn), for June, as follows:

Lump.....	$3.45	Stove.....	$3.95
Steamer	3.45	Chestnut.....	3.40
Grate	3.45	Small chestnut.....	2.40
Egg.....	3.60		

The Philadelphia & Reading Coal & Iron Company quotes for June, alongside New York, as follows:

Hard white-ash, lump, broken and egg.....	$4.05
Free-burning white-ash, broken	3.80
" " " " egg.....	3.95
Stove.....	4.30
Chestnut.....	3.70

Delivered at Port Richmond as follows:

Lump & steamboat.....	$3.30	Stove.....	$3.75@$3.85
Broken.....	$3.25@$3.70	Chestnut	3.15@ 3.25
Egg.....	3.40@ 3.85	Pea.....	2.25

The amount of coal selling shows no improvement over that of several months past after the announcement of an advance, which appears to have a tendency to bring in a little trade.

The Delaware, Lackawanna & Western Railroad Company announces that it will sell 50,000 tons of coal at auction next Wednesday. This is not quite one fourth of its allotment.

Our Boston correspondent under date of May 18, says: "Harned, Ogle & Co., of Philadelphia, concluded a contract yesterday with the Boston & Albany Railroad Company for 115,000 tons of coal on a basis of $2.80 per ton at Philadelphia, 20,000 tons to be shipped to Boston, and 95,000 tons to Hudson and Albany. This is the largest sale of coal ever made in this market."

The production of anthracite coal last week was 391,387 tons, as against 378,477 tons the previous week, and 517,272 tons the corresponding week of 1877. The total production from January 1st to May 18th was 4,858,034 tons, as compared with 6,738,153 tons for the like period of last year, showing a falling off this year of 1,880,119 tons.

Bituminous.

Outside of two Eastern orders aggregating 120,000 tons, we learn of no important business, although there is a fair inquiry for cargo lots and considerable inquiry from manufacturers and new trade. The producers of this coal are a little disappointed in the comparatively small advance made in the prices of anthracite, but still hope that the further advance predicted will be made next month. Should this be made, a very fair year's business may be looked for in bituminous.

New York.

Wholesale Prices of Anthracite Coal for May Delivery f. o. b. at Tide Water Shipping Ports, per ton of 2,240 lbs.

	Lump.	Steamer.	Grate.	Egg.	Stove.	Chestnut.
WYOMING COAL.	$	$	$	$	$	$
Lackawana, at Weehawken	3 50	3 50	3 50	3 60	3 90	3 50
*Pittston, at Newburg.....	3 35	3 35	3 35	3 45	3 75	3 10
Wilkesbarre, at Pt. Johnson	3 50	3 50	3 50	3 60	3 90	3 25
L. Val. Coal Co., at Amboy.	.....	.....	3 50	3 60	3 90	3 25
Kingston at Hoboken.....	3 50	3 50	3 75	3 60	3 90	.....
Plymouth R. A.. at Pt. John.	.....	.....	3 50	3 70	4 00	3 35
LEHIGH COAL.						
Old Company's. at Pt. John.	4 00	.....	3 75	3 75	3 90	3 25
Honey Brook L. at Pt. John	3 75	.....	3 75	3 75	3 90	3 25
L. V. Coal Co., at P. Amboy.	4 00	.....	3 75	3 75	3 90	3 25
Mount Pleasant, at Hobok'n	4 00	.....	3 75	3 75	3 90	3 25
Hazleton, at Hoboken....	4 00	.....	3 75	3 75	3 90	3 25
Cross Creek, at Port John.	4 00	.....	3 75	3 75	3 90	3 25
Sugar Loaf at Perth Amb'y	4 00	.....	3 75	3 75	3 90	3 25
Upper Lehigh at Eliz'b'th'pt	4 00	3 75	3 75	3 75	3 90	3 25
Council Ridge at Eliz'b'th'pt	4 00	3 75	3 75	3 75	3 90	3 25
SCHUYLKILL COAL *at Pt. Richmond, Phila.*						
Hard White Ash.	3 25	3 25	3 25	3 35	3 55	3 00
Free-burning W. Ash.	.....	.....	3 15	3 25	3 55	3 00
Schuylkill Red Ash.....	.....	.....	.....	3 50	3 60	3 00
Lorberry.....	.....	.....	3 60	3 60	3 60	.....
Lykens Valley Vein.....	.....	.....	3 60	3 75	3 75	.....

* Fifty cents per ton additional for delivery in New York.

Wholesale Prices of Bituminous Coal.

DOMESTIC GAS COALS.

Per ton of 2240 lb.	At the Shipping Ports.	Alongside in New York.
Westmoreland and Penn.....	$4 25	.....
At Greenwich, Philadelphia	.....	$5 50
At S. Amboy.	5 00	5 50
Kanawha at Richmond	4 10	5 40
Red Bank Cannel, Pa., at Philadelphia..	8 00	8 50
Youghiogheny, Waverly Co., at Balt ...	4 00	5 65
Despard, West Va.....	4 50	6 00
Murphy Run, West Va., at Baltimore...	3 75	5 85
Fairmount, West Va., " " ...	3 75	5 70
Newburg Orrel. Md. " " ...	3 75	6 00
Cannelton Cannel, West Va	.....	10 00
" Splint " at Richmond.	6 00	7 00
" Gas Coal at Richmond	4 00	5 65
Peytona Cannel, W. Va., at Richmond...	....	10 00
MANUFACTURING AND STEAM COALS.		
Cumberland at Georgetown and Alexandria	2 75@2 90	4 35@4 50
Cumberland, at Baltimore.....	2 90@3 00	4 35@4 50
Cl'rf'd "Eureka" and "Franklin."		
At mines.....	0 75	....
At Baltimore.....	3 25	4 50
At Philadelphia.....	3 25	4 50

FOREIGN GAS COALS.

	Sterling.	Am. cur'ncy.
Newcastle, at Newcastle-on Tyne.....	7s.6d.	$2 50@ $3 50
Liv. House Orrel, at Liv.....	25s.	13 00
Ince Hall Cannel " ....,	35s.6d.	18 00
" Gas Cannel "	25s.6d.	10 00@ 10 50
Scotch Gas Cannel, at Glasgow, nominal.....	25s.	7 50
	Gold.	
Bl'k House, at Cow Bay, N.S.	$1 75	$4 50
Caledonia, at Pt. Caledonia.	1 50	4 25
Glace Bay at Glace Bay....	1 50	4 00
Lingan, at Lingan Bay.....	1 50	....
Intern'l Mines, at Sydney...	1 75	4 50
Pictou, Vale Mines, at Pictou	2 00	4 70

Retail Prices.

Per ton of 2000 lbs.

Anthracite.

	G. & Egg.	Stove	Chest'
Pittston coal delivered.....	$5 00	$5 00	$5 00
Lack. coal, delivered below 59th St.	4 50	4 50	4 50
Wilkes-Barre, delivered	4 50	4 50	4 50
Lehigh and Locust Mount. del'd	5 00	5 00	4 75

Bituminous.

Liv. House Orrel.....	$18 00	American Orrel.....	$11 00
Liv. House Cannel....	18 00	Red Bank Cannel.....	7 00
Am. "	11 00	Cumberland...	9 00
Ca'n'l't'n Bl'k, or splint.	10 00		

Baltimore. May 21, 1878.

[Specially reported.]

Wholesale Prices per ton of 2240 lb.
In cars at Depot N. C. R. R.

HARD WHITE ASH, FREE-BURNING WHITE ASH, SHAMOKIN, ETC.

Lump and Steamboat	$3.95	Stove	$4.25
Broken	3.95	Chestnut	3.70
Egg	4.05		

LYKENS VALLEY RED ASH.

Broken	$4.15	Stove	$4.45
Egg	4.25	Chestnut	3.90

From wharf or yard to the trade, 50c. per ton additional. Afloat by cargo per canal barge, 15c. per ton less than in cars.

Boston. May 18, 1878.

COAL.—There is some talk of another advance in prices (on paper) by the combination, but this does not disturb the equanimity of dealers, who purchase very sparingly. Freights are about the same as last quoted, except that at Georgetown they have advanced to $1.40, on account of the scarcity of vessels, caused by the unexpected early opening of navigation.

We quote Boston wholesale prices as follows:

Anthracite, broken	$4.35	Caledonia	$4.00
" egg	4.40	Newcastle	4.00
" stove	4.70	Cannel, English	18.00
Franklin	5.75	" Library	15.00
Cumberland	4.50	" Buckeye	11.00
Clearfield	4.50	Penn	6.25
Westmoreland	6.25	Youghiogheny	6.25

—*Commercial Bulletin.*

Chicago, Ill. May 21, 1878.

[Specially reported by Messrs. RENO & LITTLE.]

Please correct quotations as follows:

Retail prices of coal delivered per ton of 2,000 lb.

Lackawanna Stove	$5.75	Erie and Brier Hill	$5.00
" Chestnut	5.25	Wilm'gton & Ill.	$3 00@3.50
" Grate	5.50	Blossburg	5.50
" Egg	5.25	Piedmont	6.50

Hamilton, Ont. May 20, 1878.

[Specially reported by H. BARNARD.]

Retail prices delivered per ton of 2,000 lb.

Scr. or Wilkes-B. Grate	$5 00	Lehigh Lump	$6 00
" " Egg	5 00	Brier Hill	5 50
" " Stove	5 25	Massillon	4 50
" " Nut	5 25	Smithing	5 50

Louisville, Ky. May 20, 1878.

[Specially reported by Messrs. BYRNES & SPEED.]

Wholesale per bushel of 72 lb.

Pittsburg	8c.	Raymond City	7½c.
Ashland (Ky.)	7	Kentucky, on cars	8

Retail.

Pittsburg	$3 00	Anthracite, per ton	$7 50
Raymond City	2 75	City Made Coke, per bsh	7c.
Ashland (Ky.)	2 50	Soft Coke, per bushel	7c.
Pittsburg nut	2 50		

Milwaukee, Wis. May 20, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

Retail price per ton of 2,000 lb.

Anthracite, Egg, Chestnut and Stove			$6 50
Lehigh lump	$7 00	Connellsville coke on	
Brier Hill	5 25	RR. track	7 25
		Straitsville	4 80

Montreal. May 20, 1878.

[Specially reported by Messrs. ROBERT C. ADAMS & Co.]

Wholesale per 2,240 lb.

Scotch Steam	$4 75	Cape Breton Steam	$4 25
Pictou	4 50	Newcastle Smith's	6 00

Anthracite at retail, per 2,000 lb. delivered.

Stove	$6 50	Chestnut	$6 00
Egg	6 00		

Philadelphia. May 23, 1878.

"Those who want anthracite coal continue to hide from those who want to get rid of anthracite coal." This was the situation as expressed in one of our dailies two weeks ago, and it continues to be so. For a few days past, however, there has been a better feeling in the Eastern markets. Buyers who were incredulous until then about the success of the combination, and who know that it depends entirely on the proper regulation of the production, began to be impressed favorably by the manner in which the producers submitted so far to the reductions, some of them under the most trying circumstances. Why, having gone so far, and at a critical time, the quota for June has been fixed for an amount much greater than the market will require, is a mystery. That it is a great mistake, is the universal opinion. The Board of Control sadly needs to be controlled. The increase of prices by circular, before the old rates were fully established, and with an amount to be shipped rendering an advance impracticable, will be confined to paper. The Lehigh region, which has acted so far with more moderation and business tact than the others, saw this at once, and their prices have not been changed.

When the Schuylkill region resumes on June 3d, the stock of coal at Port Richmond will probably be quite low, the coal on hand being shipped off rapidly, at the rates of freight which have ruled for some time past, viz., $1.10@$1.20 to Boston, $1@$1.05 to Rhode Island.

Pittston, Pa. May 20, 1878.

Pennsylvania Coal Company's Coal in Yard.

Retail per ton of 2,000 lb.

Lump, Egg, and Stove	$2 25
Chestnut	2 00
Pea	1 00

Delivered, 50 cents per ton additional.

Sandusky, Ohio. May 20, 1878.

[Specially reported by C. E. BLACK, Agent Con. Coal and Mining Company.]

We quote coal on cars at Sandusky, as follows:

Per ton of 2,000 lb.

ANTHRACITE.

	Grate.	Egg.	Stove.	Chest
Lehigh	$6 50	$6 50	$6 50	$6 50
Wilkes-Barre	5 75	5 75	5 75	5 75
Lackawanna	5 75	5 75	5 75	5 75

BITUMINOUS.

Massillon	$3 00	Straitsville	$2 70
Del Carbo	2 75	Shawnee	2 70
Hocking Valley	2 70	Blossburg	4 75

Prices retailed delivered 50c.@75c. above car prices.

Richmond, Va. May 20, 1878.

[Specially reported by S. H. HAWES, Dealer in Coal.]

Please make quotations as follows:

Per ton of 2,240 lb. f.o.b.

Kanawha Cannel	$9.00	New River Bituminous	$3.40
Coalburg Splint	4.50	Clover Hill Coal	3.00
Lewiston "	4.50	Norwood Gas and	
Kanawha Gas Coal	4.10	Steam Coal	2.70

San Francisco, Cal. May 16, 1878.

COAL.—Imports from January 1st to May 1st, 1878:

	Tons.		Tons.
Anthracite	4,436	Vancouver Island	42,644
Australian	12,390	Seattle	23,361
Coos Bay	7,852	English	14,076
Cumberland	349	Mt. Diablo	23,040
Bellingham Bay	2,300		

Imports during the week have been more liberal than for some time past, and these embrace the following: Per Fr. bark Sanvic, 1082 tons from Newcastle, N. S. W.; ship Rajah, from same, with 1648 tons; Nor. ship Ariel, from same, with 1375 tons; Kirkwood, from Sydney with 1817 tons; Grecian, from Boston with 200 tons and 241 cks Cumberland; Sonoma, from Liverpool with 1471 tons; the "Bully," per Kirkwood, is for the Pacific Railroad Co.; the "Gretta," per Ariel, is for the Gas Co. on an old contract. Spot cargoes of Wallsend are held at $7@7.25. From the north we have the Yosemite, with 1900 tons Seattle; Germania, from British Columbia with 1413 tons Wellington. California mines continue to furnish regular supplies at $4.50@5.50 ₱ ton. Coast cargoes may be quoted at $6@6.50. Empire is jobbing at $5.50, delivered to families, which is the cheapest article in the market. Coos Bay and Seattle are held a dollar higher. Wallsend spot may be quoted at $8, in lots, but by the cargo $7 is about the price. Anthracite and Cumberland are slow of sale at nominal quotations. The Gov. Goodwin, from Nanaimo, brought 2200 tons. This description is largely monopolized by the Pacific Mail Steamship Co., supposed to be at or about $6. —*Commercial Herald.*

FREIGHTS.

Coastwise Freights.

Per ton of 2,240 lb.

Representing the latest actual charters to May 23, 1878.

PORTS.	From Philadelphia.	From Baltimore.	From Elizabethport, Port Johnson, South Amboy, and Weehawken.
Augusta, Me	1.25†	....	
Alexandria, Va			
Annapolis			
Brooklyn, N. Y	85		
Bangor, Me		$1.45	
Bath, Me		1.25	90
Baltimore	40		
Boston, Mass	1.10@1.20	1.25@1.30	80@90
Bridgeport, Conn.	90†	1.30	50
Bristol, R. I			80
Beverly, Mass			80@90
Buffalo	1.50		
Cambridge, Mass.	1.20@1.20§	....	80@90
Cambr'g p't, Mass			
Charleston			
Chelsea	1.18		
Danversport	1.25		
East Cambridge	1.10		
Fredericksbrg, Va			
Fall River		1.30	70
Gardner, Me	1.30		
Georgetown, D.C.			
Gloucester	92†		
Hartford, Conn			
Hoboken			35
Hudson, N. Y			
Jersey City			35
Lynn	1.18		
Middletown			90
Nantucket, Mass.	1.25		90
Newark, N. J			
New Bedford	1.10@1.15	1.30	80
Newburyport		1.40	1.00
New Haven	90†@1.05		50
New London		1.30	50
Newport	1.10		70
New York	75@85	1.20	35
New Orleans, La.			
Norfolk, Va			
Norwich	1.10		65
Norwalk, Conn			55
Pawtucket	1.20‡		
Philadelphia			
Plymouth	1.40†		
Portland	1.00†	1.25	80
Portsmouth, N.H.	1.20	1.40	90
Providence	1.10	1.30	70
Richmond, Va	50		
Rockland	1.30		
Rockport	1.35		
Salem, Mass	1.20@1.25	1.25@1.30	80@90
Savannah, Ga	82		
Somerset, Mass	1.15		
Washington	55@60		
Wilmington, N.C.			
Wilmington, Del.			

*And discharging and towing. † And discharging. ‡ And towing. § 3c. per bridge extra.

Canal Shipments.

Shipments via. canal for the week ending May 22d, 1878, as compared with the same period last year, are as follows:

BOUND WEST.

	1878. lbs.	1877. lbs.
Pig-lead		300
Pig-iron	219,500	392,000
Foreign salt	97,600	3,800
Iron and steel	254,000	93,800
Stone clay and lime	1,304,500	824,800
Gypsum	298,300	83,900
Anthracite coal	10,330,800	10,525,400
Stone clay and lime	5,498,400	1,767,600
Iron ore	1,534,400	739,200

BOUND EAST.

Lake Freights on Coal and Iron Ore.

Representing the latest actual charters up to the 20th inst

From	To	Rate per ton.	From	To	Rate per ton.
Cleveland	Chicago	35	Buffalo	Milwaukee	30
"	Buffalo	35	Ashtabula	"	40
"	Toronto*	1.00	"	Chicago	35
"	Milwaukee	40	Buffalo	Detroit§	25
"	Detour	40	Oswego	Chicago	65
"	Sh'boyg'n	50	"	Milwaukee	60
Marquette	Cleveland†	1.30	"	Detroit	40
"	Ashtab'la†	1.40	Charlotte	Milwaukee	65
Black Riv.	Buffalo	35	Buffalo	Portage	50
Fairport	Milwau'ee	35	Cleveland	Ogdensb'g	1.30
Black Riv.	Br'ckville‡	1.25	"	Prescott	1.25
"	Blk. Rock	45	Blk. River	Buffalo	35
"	Chicago	40	Kincardi'e	Chicago¶	60
Buffalo	"	30			
"	Detroit	20			

*Gold. †Iron ore. ‡Six trips coal and six trips ore. §Pig iron. ‖Gold and return cargo, ore. Ogdensburg to Cleveland, 50c., free on board. ¶Salt free on board.

CLEVELAND, O., May 19, 1878.

The rates to Chicago and Milwaukee are firmer, being from 35 to 40 cents for large vessels and from 40 to 45 cents for small. Unless grain freights should advance, vessels will be slow to take coal to Lake Michigan at these prices.

Ocean Freights.

Ocean Freights on coal, iron, etc., per ton of 2000 lb., to and from foreign and domestic ports, for two weeks ending May 23d, 1878, are given below.

DATE.	From	To	Cargo.	R'te
May 8	New York	Belfast, Ireland	Slate	*26
" 8	Baltimore	St. Thomas, W.I.	Coal	2.50
" 8	Ragged Island	New York	Salt	10
" 13	Philadelphia	St. Jago, Cuba	Coal	2.25
" 13	Georgetown	" "	"	2.50
" 15	Philadelphia	Genoa, Italy	"	4.00
" 15	Rondout	Zaza	"	1.95
" 15	Turk's Isle, Bahamas	Providence	Salt	08
" 18	Philadelphia	St. Thomas, W.I.	Coal	2.50
" 18	Almeria, Spain	New York	Iron Ore	*8
" 21	Philadelphia	Cardenas, Cuba	Coal	1.00
" 21	Baltimore	St. Jago, Cuba	"	2.50
" 23	New York	Bremen, Ger.	Slate	*26

*Shillings.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, May 24, 1878.

American Pig.—The condition of business is getting worse, not being far from panicky. Cost has nothing to do with prices, and as it is a well-known fact that there is not a Lehigh furnace making money at present prices, we can only look to the financial embarrassment of some of the companies or suspension of production to bring about a change. How soon we shall have either of these is a difficult question to answer; but if the production be continued at the present rate, prices must still further decline, probably reaching as low a point as has ever been reached in the history of the iron trade. No economies are being established over last year. One of the prominent companies has had an offer from its miners to work at 55c. per day during July and August, but has this counterbalanced by the increased cost of coal. There are no indications of an increased demand during the balance of the year. We note for the week sales of 1200 tons of Thomas iron on private terms, and several hundred tons of other brands, some at the lowest prices reported since the panic. We quote No. 1 foundry at $16.50@$18; No. 2 foundry, $15.50@$17; and forge, $14.50@$16.

Scotch Pig.—The business has been limited to two lots of 50 tons and some smaller quantities. Prices are quite nominal, and as follows: Eglinton, $22.50; Coltness, $24.50; and Glengarnock, $23.50.

Rails.—We note a sale of 1500 tons of steel rails for October and November delivery on private terms. A very good demand continues for steel rails, and prices for prompt delivery are nominal at $43@$44 at mill, while for later delivery some concession could be obtained. Iron rails are quite inactive, and quoted at $32@$36.

Old Rails.—We note a sale of 150 tons at $17.50 and 600 tons on private terms. We quote $17@$18.

Wrought Scrap.—We are reported a sale of 500 tons on private terms, and quote at $20@$21.

Baltimore, Md. May 20, 1878.

[Specially reported by Messrs. R. C. HOFFMAN & Co.]

The iron market continues dull and depressed, with light sales at about quotations, viz.:

Balt. Char.	$28.00@$29.00	M. & White	$14.00@$15.00
Va. "	27.00@ 29.00	C'lC.B.Blooms	50.00@ 52.00
Anth. No. 1	19.00@ 21.00	" " Billetts	52.00@ 55.00
" " 2	18.00@ 19.00	Refi'd Blooms	45.00@ 50.00
" " 3	17.00@ 18.00		

Buffalo. May 20, 1878.

[Specially reported by Messrs. PALEN & BURNS.]

No. 1 Foundry	$19.50
No. 2 "	18.50
B 1 "	19.00
Silver Gray	17.00
American Scotch A 1	19.50
" " B 1	19.00
" " No. 2	18.50

Cincinnati, O. May 21, 1878.

[Specially reported by Messrs. TRABER & AUBERY, Commission Merchants for the sale of pig iron. blooms, ore, etc.]

Below please find closing quotations of our pig iron market, viz.:

CHARCOAL.

H'n'g Rock	No. 1 Foundry & B 1.	$21 00@$22 50	—4 mos.
"	No. 2 "	20 00@ 21 00	—4 mos.
"	Soft Silver Gray	19 00@ 20 00	—4 mos.
"	Mill	18 00@ 19 00	—4 mos.
Tennessee	No. 1 Foundry	21 00@	—4 mos.
"	No. 2 "	20 00@	—4 mos.
"	Mill	18 00@ 19 00	—4 mos.

STONE COAL.

Ohio No. 1 Foundry	$19 00@	—4 mos.
" No. 2 "	18 00@	—4 mos.
" Nos. 3 and 4 "	17 00@ 16 00	—4 mos.
" Mill	17 00@	—4 mos.

COKE.

Ohio & W. Va.	No. 1 Foundry	$20 00@	—4 mos.
" "	No. 2 "	18 00@ 19 00	—4 mos.
"	Mill	17 00@	—4 mos.

CAR-WHEEL.

H'n'g R., C. B.	Hecla, Vesuvius, Etna, Jefferson.	$36 00@	—4 mos.
Maryland,	" Cedar Point	35 00@	—4 mos.
Missouri,	" Maramec	30 00@	—4 mos.
Alabama,	" Woodstock	32 00@	—4 mos.

BLOOMS.

Charcoal	$45 00@$50 00—cash.

SCRAP IRON.

Cast	40c. @ 45c.—cash.
Wrought	62½c.@ $1.00—cash

Columbus, Ohio. May 20, 1878.

[Specially reported by Messrs. KING, GILBERT & WARNER, Dealers in Pig Iron and Ores.]

We are unable to report any change in the pig iron market during the past week. Consumers do not seem disposed to take advantage of the low prices, and are only buying enough to meet actual wants. Prices remain unchanged:

FOUNDRY IRONS.

No. 1 Hanging Rock Charcoal	$23 50@$24 00
No. 2 " " "	22 00@ 22 50
No. 1 Hocking Valley soft and strong from pure limestone ores	20 00@ 20 50
No. 2 Hocking Valley soft and strong from pure limestone ores	19 00@ 19 50
No. 1 American Scotch	19 00@ 19 50
No. 1 Moxahala	20 00@ 20 50
No. 2 "	19 00@ 19 50
No. 1 Shawnee	19 50@ 20 00
No. 1 Eliza (Jackson County)	19 00@ 19 50
Silver Gray	17 50@ 18 00

MILL IRONS.

Gray neutral	18 00@ 18 50
Mottled and white neutral	17 00@ 17 50
Gray cold short	17 00@ 17 50
Mottled and white cold short	16 00@ 16 50

Chattanooga, Tenn. May 20, 1878.

[Specially reported by J. F. JAMES, Dealer in Iron & Metals.]

The market remains in much the same condition as noted in my last report. Business continues exceedingly dull, and the little demand made for all grades is for immediate requirements. The situation is far more discouraging now than it has been at any time yet. Prices continue weak and unchanged. I quote as below f. o. c. at furnaces:

Tenn., Ala. & Ga.	Charcoal, No. 1 Foundry	$18 00@	$19 00
Tenn., Ala. & Ga.	Charcoal, No. 2 Foundry	17 00@	18 00
Tenn., Ala. & Ga.	Charcoal, Gray Forge	15 00@	16 00
Tenn., Ala. & Ga.	Coke, No. 1 Foundry	19 00@	20 00
Tenn., Ala. & Ga.	Coke, No. 2 Foundry	17 00@	18 00
Tenn., Ala. & Ga.	Coke, Gray Forge	15 00@	16 00
Tenn., Ala. & Ga.	cld B. (car-wheel)	20 00@	28 00
Charcoal or Coke, white and mottled		14 00@	15 00

Old rails	$18 00@$19 00	Wr'ght scrap,	
Old car wh'ls.	16 00@ 17 00	No. 2	$12 00
Wr'ght scrap,		Cast scrap	10 00
No. 1	17 00	Muck bar	32 00@ 33 00

Cleveland, O. May 20, 1878.

[Specially reported by Messrs. C. E. BINGHAM & Co.]

Per gross ton, on four months' time. Subject to change without notice.

FOUNDRY IRON.

No. 1 L. S. Charcoal	$24 00	Am. S., No. 1, Ch. Val.	$22 00
No. 2 " "	24 00	" " B—1, " "	21 00
No. 1 Anthracite	21 00	" " No. 2 " "	19 00
No. 2 "	19 00	No. 1, Massillon	22 00
No. 1 Bituminous	21 00	B—1, "	21 00
No. 2 "	19 00	No. 2, "	20 00

CAR-WHEEL AND MALLEABLE IRON.

No. 3, L. S. Charcoal	$25 00	Nos. 5 & 6, L. S. Char.	$25 00
No 4, " "	25 00		

BESSEMER IRON.

Nos. 1 & 2, L. S. Char.	$24 00

FORGE IRON.

No. 1, Gray	$18 00	White and Mottled	$17 00

Iron Ores.

Red Hematite (about 55 per cent. metallic iron) f. o. c. at mines	$1 25
Brown Hematite (about 55 per cent. metallic iron)	1 75

Louisville, Ky. May 21, 1878.

[Specially reported by Messrs. GEORGE H. HULL & Co.]

Fair demand for all grades, foundry irons taking the lead. While there is no change in quotations, it seems to be the impression that bottom has been reached, and, with an increased demand, prices would show more firmness than they have manifested for a year. The usual time, 4 months, allowed on the quotations below:

FOUNDRY IRONS.

	No. 1.	No. 2.
Hanging Rock Charcoal	$21 00@$22 00	$18 00@$20 00
Southern Charcoal	18 50@ 19 00	17 50@ 18 00
H'n'g Rock, Stc'l & Coke	19 00@ 20 00	18 00@ 19 00
Southern Stonecoal & Coke	18 00@ 19 00	17 00@ 18 00

"Amer. Scotch"... $19@$20 | Silver Gray... $16@$17.00

MILL IRONS.

No. 1 Charcoal, Cold-short & Neutral	$16 00@$17 00
No. 1 Stc'l & Coke, Cold-short & Neutral	16 00@ 16 50
No. 2 Stc'l & Coke, Cold-short & Neutral	@ 16 00
No. 1 Missouri and Indiana, Red-short	20 00@ 21 00
White & Mottled, Cold-short & Neutral	14 00@ 15 00

CAR-WHEEL AND MALLEABLE IRONS.

Hanging Rock, Cold Blast	$32 00@$34 00
Alabama and Georgia, Cold Blast	25 00@ 31 00
Kentucky, Cold Blast	25 00@ 30 00

Milwaukee, Wis. May 20, 1878.

[Specially reported by Messrs. R. P. ELMORE & Co.]

CHARCOAL IRON.

No. 1 Lake Superior per gross ton	$23 00—4 mos.
" 2 " " " "	22 00—4 mos.

ANTHRACITE IRON.

No. 1 Anthracite per gross ton	24 00—4 mos.
" 2 " "	23 00—4 mos.

STONE COAL AND COKE.

Warner's Am Sc'th (Bk. Band, per ton	$25 00@ —4 mos.
Soft Silvery per ton	22 00@23 00—4 mos.
Ohio Stone Coal	22 00@23 00—4 mos.

CAR WHEEL.

Lake Superior ores per ton	$25 00@27 00—4 mos

Philadelphia, Pa.

May 23, 1878.

[Weekly Report of the Philadelphia Iron Market, furnished for THE ENGINEERING AND MINING JOURNAL by JUSTICE COX, Jr., & Co., Iron Merchants, 333 Walnut street, Philadelphia, week ending May 23d.]

Pig Iron.—The feeling in the market is somewhat better than at the last report. Buyers are disposed to take hold at the present low prices rather than wait hoping for lower prices. Several large buyers are in the market at this time though no sales have been made as yet. The low price and the assurance from the coal combination that coal will be advanced from month to month stimulate an inquiry that it is believed will result in business in the near future. We report sales of about 1000 tons, and quote No. 1, $18 to $19.50; No. 2, $16.50 to $17.50. Gray Forge and mottled iron are scarce at this time and command almost as much as foundry irons.

Manufactured Iron.—The demand for bars can be reported a little more encouragingly, one or two mills having about all they can do for the present, while other mills are doing little or nothing. In plate and tank one or two mills are doing all the work while others are standing idle; not that these mills are selling less than their neighbors, but better iron, more prompt delivery, or some such thing, has got them the orders. In skelp some little business is doing, but at such prices the parties not getting the orders are considered most fortunate. We quote bars common, 1.75c. to 1.09c.; best refined, 2 to 2 1-10c. ℔ lb.; plate and tank iron, 2 2-10 to 6c. ℔ lb.; skelp, 2 to 2 1-10c. ℔ lb.

Muck Bars are quoted $33 to $34 Philadelphia.

Rails.—Steel rails continue in good demand, and makers only take orders at prices that will pay. We quote $42 to $44 at mills.

Iron Rails.—Are in better demand and several large lots are reported sold at fair prices. We quote $32 to $35 at mills.

Old Rails.—The demand for old rails is slack and only few sales are reported. We quote $19 to $19.50, Philadelphia.

Scrap.—Wrought scrap is quoted $20 to $24, Philadelphia; demand slack.

Cast Scrap is quoted $12 to $16 Philadelphia.

St. Louis, Mo. May 21, 1878.

[Specially reported by Messrs. SPOONER & COLLINS, Commission Agents for all kinds of Iron.]

Pig iron business is still quiet. Our market has shown no special change the past week. Prices are unchanged for standard brands of iron. Old rails are dull, and the indications of the future is lower prices.

COLD BLAST CHARCOAL—ALL NUMBERS.

Hanging Rock	$25@$34	Assorted Bar Iron	$2, rates.
Tennessee	26@ 30	No. 1 Wr'ght Scarp,	80c. cwt.
Kentucky	25@ 30	Heavy cast "	65c. "
Missouri	26@ 28	Light "	55c. "
Georgia	24@ 26	Old rails	$20 00@$20 50
Alabama	24@ 26	Old carwheels	17 00@ 18 00

	No. 1.	No. 2.	Mill.	White and Mottl'd
Missouri stone coal	$22 00	$22 00	$19 00	$16 00
" charcoal	20 00	19 00	18 50	17 00
Tennessee charcoal	22 00	21 00	19 00	17 00
Tenn. coke very soft and strong	21 00	20 00	19 00	17 50
Hanging Rock charcoal	25 00	24 00	.....	.....
" " cold short	22 00	21 00	.....	.....
	ExNo.1	No. 1.	BNo.1.	No. 2.
Alice Hanging Rock coke.	$24 00	$23 00	$22 50	$21 50
Quinnimount, W. Va., coke.	24 00	22 50	21 50	20 50

Richmond, Va. May 21, 1878.

[Specially reported by ASA SNYDER, Esq.]

This market is quieting down rather uncomfortably. While values have not changed materially, still they are weak at quotations.

Amer. Scotch Pig Iron			$23.00@$24.00
Anthracite	" "	No. 1	19.50@ 20.50
"	" "	No. 2	18.50@ 19.50
"	" "	No. 3	17.50@ 18.50
"	" "	Mottled	15.00@ 16.00
Coke	"	No. 1	21.00@ .....
"	" "	No. 2	20.00@ .....
Va. Cold Blast Charcoal Pig Iron, cold short			20.00@ 24.00
" " "	" "	neutral	28.00@ 29.00
" Warm	" "	cold short	19.00@ 22.00
" " "	" "	red short	
		silver grey	18.00@ 19 00
Old Rails			16.00@ 17.00
Wrought scrap No. 1			18.00@ 19.00
Cast scrap—Machinery			17.00@ .....
Richmond Refined Bar Iron			2.00@ 2.25
Horse-shoes			4.50@ 4.75
Mule-shoes			5.75@ .....
Old Dominion nails (standard size)			2.60 keg.

METALS.

NEW YORK, Friday Evening, May 24, 1878.

A more unsatisfactory state of business could hardly be imagined: but very little demand, and prices inclined downward in every article except tin plates, which are firm, owing to the announcement of a combination which is of questioned durability.

RECEIPTS OF METALS AT NEW YORK FOR THE FOUR WEEKS ENDING MAY 23, AND YEAR FROM JANUARY 1, 1878.

	May 2	May 9	May 16	May 23.	Yr. from Jan. 1.
Copper, bbls	80	125	206	594	4,869
Copper, boxes	.....	.....	....	.....	113
Copper, cakes	.....	.....	....	1,602	4,873
Lead, pigs	2,524	3,659	8,476	2.040	146,547
Spelter, pieces	.....	2,680	...	531	21,647
Quicksil'r, flasks	.....	.....	....	25	333

Gold Coin.—During the week under review the price of gold has ranged from 100¾ to 101, and closed at 101.

Bullion.—The silver market abroad has still further weakened as we have for some weeks past predicted it would, and there are still no indications of an improvement. On the contrary, we incline to the opinion that we shall see lower rates in June than are now current. We quote silver at 116¾ in this city; 53⅛@53¼d. in London, and 9 per cent discount in San Francisco. Gold bars are quoted at par to ⅛ per cent premium.

DATE.	London Pence.	N. Y. Cents.	DATE.	London Pence.	N. Y. Cents.
May 18	53⅛	117	May 22.	53¼	116¾
May 20	53⅛	117	May 23.	53¼	116¾
May 21	53⅛@53¼	116¾	May 24.	53¼	116¾

BULLION SHIPMENTS.

May	14. Star,	Nevada	$8,200.00
"	14. Hussey,	"	2,800.00
"	11. Justice	"	7,116.14
"	10. Tybo. Cons.,	"	12,573.22
"	14. Manhattan,	"	27,296.00
"	11. Northern Belle,	"	5,222.25
"	13. California,	"	111,905.09
"	13. Con. Virginia,	"	71,207.51
"	7. Standard,	California	41,399.25
"	8. Modoc,	"	4,600.00
"	15. McCrackin,	Arizona	†31,266.69
"	15. Signal,	"	*52,000.00
"	5. Butte,	Utah	10,430.00
"	5. Christy,	"	4,312.00
"	16. Frisco,	"	2,629.86
"	— Ontario,	"	§81,273.76

* Total for April.

† The April bullion product of this mine amounted to $104,000.

§ Total of 17 days of May, assay value.

The Father De Smet Mine, Dak. Territory, made a clean up for 26 days' run, the result of which was a brick worth $50,000.

The Imports and Exports of Gold and Silver Bullion, etc., into and from the United States as prepared and published by the Bureau of Statistics is given in the following table:

IMPORTS.	Month ending March 31.		Nine Months ending March 31.	
	1878.	1877.	1878.	1877.
Gold Bullion	$11,421	$59,395	$1,868,781	$1,939,129
Silver "	1,065,544	1,594,698	2,336,445	4,360,769
Gold Coin	184,471	944,247	9,598,247	23,017,218
Silver "	918,251	960,030	6,001,770	7,432,114
EXPORTS.				
Gold Bullion	5,003	.....	85,365	979,426
Silver "	264,191	505,364	10,664,059	7,894,747
Gold Coin	1,824,055	342,886	3,409,647	9,649,921
Silver Coin:				
Trade dollars	131,253	404,684	4,512,520	5,359,518
Other "	9,487	37,390	202,925	447,388
Manufactures	16,350	8,264	104,708	85,970

The Exports of Specie and Bullion from the port of New York for the four weeks ended April 27, 1878, were as follows:

American gold coin	$1,910,000.00
Foreign gold coin	344,890.00
Gold bars	86,597.00
Silver bars	128,437.00
American silver coin: Subsidiary	300.00
Foreign silver coin	303,735.15
Total	$2,773,959.15

$379,189 of the above was destined to London, $1,199,785.15 to Liverpool, $4,100 to Hamburg, $902,085 to Paris, $278,800 to the West Indies, and $10,000 to Central America.

The movement of gold at New York from January 1, to May 11 is thus reported: Receipts, $11,899,876, of which $8,069,000 came overland from California and $3,830,776 by sea from abroad. Exports, $5,060,591. The net result shows and increase of gold at New York since January 1st of $6,839,185.

The imports of specie at New York for the week ending May 18, were $148,129, chiefly silver,

Preparations for Keeping the Silver Dollar.—The necessi-

y of providing means for the safe-keeping of silver at the Sub-Treasury here, where most of the coin deposited for silver certificates will be kept, has required the construction of a large silver vault. This vault, now building, is 47 feet in length by 24 in breadth, and 12 feet high, and will hold $40,000,000 in silver when finished. The cost of the iron and steel work employed in its construction is about $20,000, including the doors and their levers. The floor of the vault will be iron and steel, two inches thick, and under this will be four feet thickness of concrete.

The Purchase of Silver Bullion.—The Treasury Department has had some difficulty in the purchase of silver bullion for coining purposes. Parties owning bullion wanted gold for it, as the bullion contains on an average about 60 per cent. of silver to 40 per cent. of gold. The Treasury, however, would pay for it only in the standard silver dollar, and the bullion owners had to make the best of these terms or keep their wares. The result is that the Treasury gets all the bullion it wants for the silver dollar, or for the silver certificate, which is preferred by the sellers.

The San Francisco *Bulletin* of a recent date remarks: There are certain elements that indicate an improved silver market for the remainder of the year. It is known that the supply at the mints will be exhausted about the 1st of June, and that thereafter the Secretary of the Treasury must purchase at least $2,000,000, and perhaps $4,000,000 in fine silver per month for an indefinite period.

Copper.—There is so little business doing that it is difficult to determine upon prices. The following are the nominal rates: Tennessee, 15¾@15⅞c., and Lake 16¼@16½c. Cable advices of last Saturday quoted Chili Bars in London at £62 10s., an advance of £1, and Best Selected at £68 10s.

Tin.—This article is exceedingly quiet. We quote Straits at 14¼@14½c., and L. & F. at 14½@14⅝c. During the week there have arrived 300 slabs of Banca, which is quoted at 17½c. The foreign quotations are unchanged.

Tin Plates.—During the week it was contradicted that an arrangement had been entered into by the makers and afterward confirmed. The transactions, principally among dealers, have been quite large, and prices are higher. We quote, in gold, per box, as follows: Charcoal tins $6@$6.12½, and ternes $5.50; coke tins $5@$5.12½, and ternes $5. Prices in England have advanced from 6d. to 1s. per box.

Messrs. Robert Crooks & Co., of Liverpool, under date of May 9th, say of tin and terne plates:

"The combination about which so much has been said and hoped from remains unaccomplished. The committee of makers are still trying to get a sufficient number of their fellows to combine, now, on a more modified shape than at first proposed. There is a chance yet of a reduction in make being effected by arrangement, but so far there is nothing certain about it. Charcoal tins are steady; ternes procurable from 16s. 6d. to 16s. 9d. Coke tins are weaker, and 15s. is again a practicable price for a decent brand; ternes procurable at 14s. 1½d. to 14s. 3d., and unassorted at 13s. 9d."

Lead.—This article is now within a quarter of a cent a pound of the export price, and we should not be surprised to see something done in this line at an early day. There have been sales of about 300 tons during the week at 3¼c., at which price the market closes, and not strong at that.

Spelter and Zinc.—During the week there have been rumors of spelter having been offered at very low prices. We can not, however, quote the market below 4¾c., with but very little business during. Sheet zinc is quiet, and quoted at 6c.

Antimony is quiet, and quoted at 12@12½c. for Hallett's, and 12¼@13¾c. for Cookson's.

Quicksilver.—The San Francisco *Commercial Herald* of May 16th says: "Receipts continue light, and holders firm at 42c.; at this rate some 1500 flasks have been sold to be delivered in all this month for export.

"The quicksilver exports by sea for the past week are as follows:

	Flasks.	Value.
To Victoria, per Dakota, May 10th	5	$162
To Victoria, per Remijio, May 11th	3	96
To Mexico, per Dashing Wave, May 11th	10	320
To New Zealand, per City of Sydney, May 13th	50	1,587
Totals	68	$2,165
Previously since January 1st	10,888	304,586
Totals since January 1st, 1878	10,956	$306,751
Totals same period, 1877	20,426	698,212
Decrease this year	9,470	$331,461

"The receipts for the week amount to 1266 flasks."

Salt Lake Ore and Metal Market.

SALT LAKE CITY, Utah, May 24, 1878.

Argentiferous Lead (Base Bullion). $26 to $28 per ton for lead; $1.15 per ounce for silver; $20 per ounce for gold. The quotations for silver are based upon the silver in the lead of 80 to 120 ounces per ton of 2000 lbs.

The imports of copper ore to the United States for the months ending March 31st, 1877 and 1878, amounted to $505 and $1083 respectively; and for the nine months ending March 31, $830 and $75,769, respectively.

The exports of copper ore for the same periods amounted to $18,070 and $9424, respectively, and for the nine months $70,469 and $113,804. Of argentiferous ore the exports for 1877 amounted to $24,250, and 1878, $8530.

FINANCIAL.

New York Stocks.

NEW YORK, Friday Evening, May 24, 1878.

The sales of coal stocks for the week amount to less than 100,000 shares. Prices have been very firm because—we thought to give a reason, but can think of none, unless it is that those who hold the stocks and represent the dealings followed the example of the coal companies, and thought that high prices would look just as well on paper as low ones.

The sales of Delaware & Hudson Canal amount to 8132 shares, at 56¼@54⅞; of Delaware Lackawanna & Western to 88,900 shares, at 56¼@54⅞; of Pennsylvania Coal, 93 shares at $1.55.

Central of New Jersey.—This stock has shown an unusual degree of activity during the past week, the total transactions reaching 18,500 shares; the quotations have ranged from 20 to 22¾, closing at 21¼. With reference to the recent report, that this company will immediately be taken out of the hands of the Receiver, it is stated that there is no truth in it, as the Receivership will probably continue until the organization is thoroughly completed, which may require two years yet.

Chesapeake & Ohio R. R.—A Richmond (Va.) dispatch of the 22d inst. says a decree has been entered in the Circuit Court of that city approving and confirming the sale of the Chesapeake & Ohio Railroad, which took place on the 2d of last month, when the road was bought by the committee, in pursuance of the plan of re-organization. The re-organization will now be perfected as soon as possible.

Baltimore & Ohio R. R. Co.—This company has declared a half-yearly dividend of 4 per cent, payable on demand.

AUCTION SALES.—*Philadelphia & Reading R. R. Co.*—17 shares at $26⅜ per share,

St Louis, Iron Mountain & Southern R. R Co.—36 shares at $65¼ per share; also $7000 1st mortgage 7 per cent coupon bonds due 1892 at 106⅝ per cent.

Morris & Essex R. R. Co.—$2000 7 per cent construction bonds, due 1889 at 79 per cent.

Chesapeake & Ohio R. R. Co.—$8000 1st mortgage 6 per cent bonds, coupons on, at 26⅜ per cent.

Nes Silicon Steel Co.—$2000 10 per cent bonds, due November, 1878, coupons on from 1875, $3.30 for lot.

Miscellaneous Stocks and Quotations.

Sales and quotations of the stocks and bonds dealt in here, at Philadelphia and Baltimore for the week ending the 24th inst are given in the following tables. The Philadelphia quotations will have a * affixed. The Baltimore quotations are indicated thus †.

STOCKS.	Par Value.	High'st	Lowest	Closing	Sales: Shares.
American Coal Co.	$25	.....	.....	29	.....
St.L.,I.M.& S.R.Co..	100	.....	.....	7	100
Spring Mt. Coal Co.	50	.....	.....	50	100
*Cambria Iron Co..	50	.....	.....	54	.....
*Penn. Salt M'g Co.	50	.....	.....	65	5
*Westm'land C. Co.	50	.....	.....	63½	35
*Buck Mt. Coal Co..	50	.....	.....	24	.....
*Schuyl. Nav. Co..	50	.....	.....	.....	.....
†B.&O.RR.Co.1st pf	.....	.....	.....	96	.....
†B.&O.RR.Co.2d pf.	100	.....	.....	84	.....
" " " " com	100	76	75	75	167
†George's C'k C. Co	100	.....	.....	85	.....
†S. Clara M'g Co...	100	.....	.....	25c	.....
†Atlantic Coal Co.	10	.....	.....	91c	.....

BONDS.	Princ'l When Due.	Int'est. When Due.	Hig'st.	Lowest	Amount.
D., L. & W., 7s, conv	1892	J. & D.	.....	.....	.....
" " " " 2d mtge.	1881	M. & S.	105	.....	$.2000
N.J.C.,1stmtge.new	1890	F. & A.	.....	.....	.....
" " " 1st mtge.,con	1899	Q.	82½	80§	150,000
" " " convt.	1902‡	M. & N.	80	79‡	12,000
Lehigh & W. B., con	1899	Q.	44	.....	26,000
Am. Dock & Imp. 7s	.....	J. & J.	.....	.....	.....
St.L.I.M.& S..1st mt	1892	F. & A.	107	106½	7,000
Ches. & O., 1st mtge	1899	M. & N.	29¼	27	5,000
D & H C Co.,1stm.rg	1884	J. & J.	102½	101½	14,000
" " " " " "	1891	J. & J.	102½	.....	6,000
" " " " m.loan cp	1894	A. & O.	100	98	19,000
" " " " " rg.	1894	A. & O.	100	98½	20,000
" " " " new mge.	.....	.....	.....	.....	.....
*L.V.R., 1stm.6s.cp.	1898	J. & D.	.....	.....	.....
" " " rg.	1898	J. & D.	.....	.....	.....
" " " 2d m. 7s,rg.	1910	M. & S.	.....	.....	.....
" " " con.m.6s,rg	1823	J. & D.	98	.....	1,000
" " " " 6s cp.	1923	J. & D.	98	97½	9,000
*Pa.RR.,1st m.6s,cp	1880	J. & J.	.....	.....	.....
" " g. m., 6s, cp.	1910	J. & J.	.....	107¾	.....
" " " 6s, rg.	1910	A. & O.	.....	.....	.....
" " con.m.6s,rg.	1905	Q.	92	.....	6,000
" " " 6s, cp.	1905	J. & D.	.....	92½	.....
" " new loan, 5s	.....	.....	110¾	.....	12,300
*P.& R. R., 1st m.6s, R. C. 43-44	1880	J. & J.	.....	103¾	.....
P. & R. R., 1st m. 6s, R. C. 48-49	1880	J. & J	.....	.....	.....
P.& R. R.,2d m.7s cp	1893	A. & O.	.....	.....	.....
" " " scrip	1882	J. & J.	52	51½	6,505
" " " in.m.7s,cp	1896	J. & D.	53	.....	6,000
" " " c.m.7s,cp.	1911	J. & D.	101	.....	6,000
" " " 7s, rg.	1911	J. & D.	.....	100¾	.....
" " cvt.7s,R.C	1893	J. & J.	26†	.....	3,000
" " C.& I.Co.,Deb 7s, R. C.	1892	M. & S.	.....	.....	.....
& R.C.& I. Co., m. 7s, R. C.	'92-3	various	.....	.....	.....
L. Nav. Co., 6s,rg.m.	1884	J. & D.	104	103¾	18,000
" " RR., rg. m.	1897	F. & Q.	103	.....	1,700
" " cvt. co. G. R.	1894	M. & S.	.....	90	.....
" " " Gold R. C.	1897	J. & D.	89½	88	23,000
" " con.m.7s,rg.	1911	J. & D.	.....	.....	.....
*P.& N.Y.C.,7s,R.C.	1896 / 1906	J. & D.	113	.....	1,000
*Pa Canal, 6s, cp..	1910	J. & J.	.....	.....	.....
*Schuyl.Nav.,1st m. 6s. rg.	1897	M. & O.	.....	86	.....
*Sus.Coal, 6s, rg...	1911	J. & J.	.....	.....	.....
†Balt.&O. RR., 6s..	1880	J. & J.	.....	.....	.....
" " " " 6s..	1885	A. & O.	104¼	.....	1,000

Total transactions for the week.....$365,505

§ $120,000 of the whole were assented, selling at from 68½ to 71⅛.
‡ $2,000 assented at 67.
† Ex-coup.

Philadelphia Stocks.

PHILADELPHIA, Friday Evening, May 24, 1878.

A very quiet week and a steady market has characterized the movements of coal shares in the Philadelphia Board during the week just closed. The total sales amount to about 40,000 shares and a slightly improved tone manifested in the prices at the later dealings. Pennsylvania Railroad stock closed at 28⅛, with sales of 33,271 shares. Philadelphia and Reading has changed hands to the extent of 6,227 shares at from 13⅜ to 13¾, closing at the latter price..

Chesapeake & Ohio Canal.—At a meeting of the board in Baltimore last week, it was decided to issue at present only half of the $500,000 bonds authorized by the Legislature of Maryland, for the purpose of repairing the canal and making additions to it. The President and Secretary were therefore instructed to sign only $250,000 of the new bonds.

AUCTION SALES.—*Schuylkill Navigation Co.*—300 shares preferred, at $6¾ per share,

Pennsylvania Salt Mfg. Co.—10 shares at $65¼ per share.

Reading Coal & Iron Co.—$5000 7 per cent bonds at 63¾ per cent.

Copper Stocks.

Reported by WILSON W. FAY & CO., Brokers in Mining and Miscellaneous Stocks, Room 7, Traveller Building, 31 State street

BOSTON, Wednesday Evening, May 22, 1878.

The market during the week has been comparatively active, although the transactions have been confined principally to three or four of the stocks, the others remaining in *statu quo*. The silver stocks have had the most transactions and have fluctuated freely enough to suit the most nervous operators.

The general market has been rather quiet, the "coppers," with the exception of Calumet & Hecla, showing a disposition to decline, which, together with the dull market on ingot copper, has the effect of frightening off investors; and the consequence is, that what ought to have been an active season in this line of stocks, has turned out to be very little better than the preceding months.

Calumet & Hecla has advanced to 179¼ bid and 179½ asked, and closed firm.

Copper Falls is quiet at 1¼@1½, and no sales.

Franklin has sold at 5½, 5¼ and 5, and closes rather weak, at 4⅞@5¼.

Osceola is quiet, there being but few bidders and not much stock on the market. It closes 8 bid and 10 asked, and no sales.

Pewabic has declined a little and is also quiet, but it is evident that an order for the purchase of 400 or 500 shares would send the stock to $2 or higher. It closes 1½@1¾.

Quincy is quiet and unchanged at 15¼@15¾.

Ridge has been active and has sold down to 1 and up again to 1¼, and closes 1 bid and 1¼ asked.

Duncan has been the interesting stock of the week, it having advanced to 2¾ upon the receipt of good news from the mine, and declined again to 2⅜, and immediately jumping to 3, with but one intervening sale, but has since declined and sold at 2¼@2⅜.

International has also been lively and has sold up to .35, and closes firm at .33@.37½.

Gas Stocks.

NEW YORK, Friday Evening, May 24, 1878.

With the exception of a slight advance in the stock of the Metropolitan Gas Company, of New York, we lower a number of our quotations. There is no change in the very dull condition of the market existing for a long time past. The Metropolitan Gas Company, of Brooklyn has declared a dividend of 2½ per cent.

Lighting the Streets of Williamsburgh.—The Brooklyn Board of Aldermen on the 20th inst. authorized the awarding of the contract for lighting the streets, now lighted by the Williamsburgh Gas Light Company, to the New York and New Jersey Globe Gas Light Company, for the remainder of the year at the rate of $23 a year. The bid of the Williamsburgh Company was $19 for eight months. The new company uses gas made from naphtha.

New York Gas-Light Co.—The annual election for directors of this company will be held June 2d.

Citizens' Gas Company, of Harrisburg, Pa.—One hundred shares of this company's stock sold at auction in Philapelphia during the week at $50 per share.

Connellsville Gas Coal Co.—$500 of the 6 per cent bonds at 27 per cent.

The following list of Companies in New York and vicinity is corrected weekly by GEORGE H. PRENTISS, Broker and Dealer in Gas Stocks, No. 30 Broad street, New York:

COMPANIES IN NEW YORK AND VICINITY.	Capital Stock.	Par.	DIVIDENDS. Rate per ann.	Am. of last.	Date of last.	QUOTATIONS Bid.	As'd
	$		P. ct.				
Mutual, N. Y.	5,000,000	$100	10	1½	Apr., '78	73	75
" Bonds..	90,000	1,000	7	3½	Feb., '78	.....	102
N. York "	4,000,000	.....	10	4	May, '78	99	102
Metrop. "	2,500,000	100	10	5	Feb. '78	130	132
" Certfs..	1,000,000	.....	7	3½	" '78	100	103
" Bonds...	500,000	1,000	7	3½	Dec., '77	102	...
Harlem "	1,850,000	50	8	3	Feb., '78	87	90
Manhat. "	4,000,000	50	....‡	5	May '78	195	198
Brooklyn, Bkln.	2,000,000	52	15	5	Apr., '78	140	150
Nassau	1,000,000	25	....‡	3	Jan., '78	70	80
" Certfs....	700,000	1,000	7	3½	May, '78	....	101
People's.....	1,000,000	10	....‡	3½	Jan., '77	25	30
" Certfs....	300,000	1,000	7	3½	Jan., '78	80	85
" Bonds....	325,000	.....	7	3	Feb. '78	96	100
Metrop. "	1,000,000	10	5	2½	May, '78	65	70
W'msb'g "	1,000,000	50	10	2	Apr., '78	95	102
" Certfs...	1,000,000	.....	7	3½	Jan., '78	100	102
Citizens'.....	1,200,000	20	....‡	3	Jan., '78	75	80
" Certfs...	220,000	1,000	7	3½	Apr., '78	97	100
J. C., N. J.....	750,000	20	10	5	July, '77	160	....
Cen. Wstch.N.Y.	466,000	50	7	4	July, '77	70	....
Subur'n, "	295,000	50	7	3½	Oct., '77	....	95
Municipal, N. Y.	1,500,000	100	.....	.....	.....	95	100

Gold and Silver Stocks.

NEW YORK, Friday Evening, May 24, 1878.

Although the total number of shares foot up for the week under review a larger amount than the week previous, yet the business has not been an important

one, more than half of it having been in Bertha and Edith which has had a downward tendency, owing to the "clean up" for three weeks' work amounting to but about $200, and to some rumors unfavorable to the company. The total transactions in this stock amount to 145,000 shares at 13@6c. recovering to and closing at 9c. The next in importance has been Lacrosse, the dealings in which have amounted to 55,400 shares at 39@35c. This stock is purely speculative, never having paid and probably never will, although we are informed the claim on the Burroughs lode is good. Dahlonega has had sales of 35,100 shares at 16@20@17c. Plumas records 8470 shares at $4@$4.15. Moose has not recorded a sale for two weeks. A change is looked for in the affairs of this company about June 1st. The announcement of Messrs. Allen & Stead having taken a large interest in this mine is pronounced a little premature. Sales of 350 shares of American at 5, cash, and 6, seller 30 days, are reported. Some small lots of California and Consolidated Virginia have changed hands through the Exchange. In Hukill the sales aggregate 200 shares at $4.70. An adjoining property and mill has been added to the Hukill, and it is believed that the value of this stock is increased thereby. Mr. S. V. White will soon make a very favorable report to the stockholders of this company. In New York and Colorado there have been 100 shares sold at $1.50. From several sources we have information that this stock is worth quite what it is selling at. The sales of Ontario amount to 668 shares at $36@$36.50. 100 shares of Raymond & Ely sold at $4.50; 200 Seaton at $1; 1000 shares of American Flag at 10@9c. Another report received by us this week from Colorado says of this mine: "Undoubtedly jumped and jumper now working." Buckeye records 2200 shares at 37@38c. The *Mining Stock Circular* in speaking of Buckeye, says: "If one half of the statements in regard to this property be true, there is a Bonanza for sale at the New York Mining Stock Exchange for 37c. per share." Now that is just the trouble, one half is not true, and our advices, after hearing from Colorado, are of such a nature as to warrant us in advising our readers not to touch it at any price. The actual amount of this stock out is so small as to give no trouble, and, as it is not looked upon with favor, we do not look to much stock finding its way into the hands of the public. It is now said, however, that something really good has been added to the already large list of this company's mines (?)—a Leadville mine. If so, let this be examined into, and if it has a value it will probably represent that of the whole stock. Gold Placer comes to the front once more, the sales for the week amounting to 11,300 shares at $1.35@.94. That any one should go into this property on the basis of $200,000 appears beyond our comprehension. In fact, we do not believe that they do, despite the large business recorded. This is pronounced a "much abused property." The word "abused" should be applied to the public. It would be well for some who were "plastered" in the first dealings in this stock to investigate the matter and see if the directors did not make false representations and whether they can not be made to refund. The sales of Kings Mt. aggregate 200 shares at $1.65@$1.60. Mt. Bross Tunnel records 1300 shares, at $1.10. Much interest is being shown in the coming election at the Mining Exchange. The fact that some of the mines now on the stock list have passed the board, whether as the result of incapacity or dishonesty of the Committee on Securities, makes no matter; a change is certainly needed very much. The Mining Exchange has labored from its start under the disadvantage of the irresponsibility of some of its officers and many of its members. During the past twelve months, however, there has been a great change and many undesirable members have sold their seats to responsible and well-known gentlemen, so that now there are plenty of houses with whom business in mining stocks can be transacted with safety. The tickets now proposed for officers and committees of the Exchange for the coming year are on the whole very good, although there are two or three names that might be changed to good advantage, and as to engage the confidence of the public the very best ticket possible is advisable, it would be well for some of the independent members to suggest the change, for the flaws are well known and there is no necessity of our being personal. The following is the regular ticket:

Geo. B. Satterlee, President; S. V. White, Vice-President; John Stanton, Jr., Treasurer; L. W. Badger, Chairman; J. Wyman Morris, Secretary, and R. H. Gallaher, Jr., Assistant Secretary. The Governing Committee, to serve three years: James C. Godfrey, James Francis, James T. Soutter, Rufus Hatch, R. M. McJimsey and D. A. Boody. For Governing Committee, Class 2, to fill vacancy: L. P. Bayne. For Committee on Securities: S. V. White, John F. Scott, Spencer Trask, Platt K. Dickinson, Henry J. Rogers, Fred Hardy and R. K. Cooke. For Finance Committee: C. I. Morris, O. B. Newcombe, Charles M. Stead, John A. Macpherson, and Geo. H. Kennedy. For Membership Committee: John J. Thomas, A. J. F. Vandeventer, Louis Haight, Gustave Leo, Chas. H. Meigs, O. H. Barbour and J. W. Burnham. An independent ticket has been proposed, which differs from the regular ticket as follows: Instead of L. P. Bayne to fill vacancy in Governing Committee, Class 2, W. Tracy Arnold; instead of Henry J. Rogers and R. K. Cooke on Committee on Securities, Wm. A. Shepard and W. W. Hanley.

The Bank of Nevada opened at 62 Wall street, this city, on Monday. We are informed by Mr. Christianson, the Manager, that the business of this institution will be confined to that of legitimate banking and will in no way facilitate operations in mining stocks.

The Eastern stockholders of the Raymond & Ely mine held a meeting in this city on Wednesday for the purpose of ascertaining who holds the stock—it being believed that a majority is held in the East—and for the purpose of arranging for a thorough report upon the mine. Messrs. Laidlaw, Gandolfa and Neu wer appointed a committee to ascertain who the Eastern stockholders are, for the purpose of assessing them for the expenses of making a report, and to select a suitable expert to report upon the property.

The New York *Graphic* of to-day publishes the following rumor: "There is a report in mining circles that the owners of the Bonanza mines intend to consolidate the various properties on the Comstock lode into one gigantic mining corporation. It is said that this purpose has been in view for some time, and that in order to extend the market for the shares one-half of the stock will be transferable in this city, and the other one half through the fiscal agencies on the Pacific coast. Practically, these great mines are now under one control. The majority of the stock is owned by the Bonanza firm, and the same superintendent has the care of all the mines. Consolidation would be a simple recognition of a fact which already very practically exists. It will be an enormous corporation if it is ever formed, and it may be the beginning of the great mining fever which so many believe is likely to occur in the immediate future. The proposed organization would represent a capital of $195,640,000 at par value, and the eleven prominent mines included in the list have paid assessments aggregating $16,788,532 and dividends amounting to $93,476,400."

The following table gives the names of the companies proposed for this combination with the capital stock, amount of assessments and dividends of each. It is said that other companies may be added to the list:

NAME OF COMPANY.	Capital.	Assessments	Dividends.
Belcher	$10,400,000	$1,280,400	$15,397,200
Best & Belcher	10,080,000	438,592	None.
California	54,000,000	None.	24,840,000
Chollar Potosi	2,800,009	1,578,000	3,080,000
Cons. Virginia	54,000,000	474,600	38,880,000
Gould & Curry	10,800,000	2,666,000	3,826,800
Hale & Norcross	11,200,000	2,746,000	1,598,000
Julia Cons	11,000,000	525,000	None.
Mexican	10,080,000	181,440	"
Ophir	10,080,000	3,136,000	1,394,400
Savage	11,200,000	3,762,500	4,460,000
	$195,640,000	$16,788,532	$93,476,400

SAN FRANCISCO MINING STOCK QUOTATIONS.

Daily Range of Prices for the Week.

NAME OF COMPANY	Closing Quotations						Opening
	May 17.	May 18.	May 20.	May 21.	May 22.	May 23.	May 24.
Alpha	9¼	8⅝	10	10¾	10½	10¾	11
Belcher	2¼	2⅛	2¼	2⅜	2⅛	2⅛	2⅛
Best & Bel.	13¼	13¼	12⅞	12⅞	13	13	13
Bullion	3½	3⅛	3¾	4	3⅞	3⅞	.....
Caledonia	1⅝	1⅝	1⅝	1¾	1¾	1⅝	.....
California	21¼	21¼	20⅛	19¼	17¾	17⅞	18
Chollar-Pot	25¼	25¼	25	25	24¼	24	24
Con. Imp	.....	.....	.....	.....	.....	.....	.....
Con. Va	12⅞	12⅞	12⅝	13	12⅝	12¾	13
Confidence	3	.....	.....	3¾	3½	3¾	.....
Crown P'int	3⅛	3⅛	3⅛	3⅜	3½	3⅜	3½
Eureka Con	59½	.....	57½	58	57½	57½	57½
Exchequer	2	2⅛	2⅝	2¾	2½	2¾	.....
Gould & Cur	5¾	6⅛	6⅛	6¼	6⅛	6½	.....
Grand Prize	3⅜	3½	3½	3¼	3¼	3¼	.....
Hale & Nor.	5⅞	5⅝	5¾	5⅞	5⅞	5⅞	6
Julia	6	6¾	7⅞	7½	7¾	8½	.....
Justice	4½	4⅜	3¾	3¾	4⅛	4¼	4
Kentuck	2¼	2¼	2½	2¼	2¼	2½	.....
Mexican	8¼	8⅝	8¾	9⅛	8⅞	8⅞	9
North. Belle	8	8	7¾	7¾	8	8½	.....
Ophir	32¼	33¼	32½	34½	33¾	34	34
Overman	8½	8	8⅝	7¾	7¾	7⅞	8
Ray. & Ely	3¾	3¾	.....	4	3¾	3¾	3¾
Silver Hill	1⅝	1¼	1⅛	1¼	1⅜	1½	.....
Savage	9¾	9⅝	9	9¼	8⅝	9	9
Seg. Belcher	.....	.....	.....	20	.....	.....	.....
Sierra Nev.	3	3	4	4¼	4½	4¼	4½
Union Con.	3¼	3⅝	4⅜	4½	4½	4⅜	4½
Yel. Jacket	7¾	7¼	7¼	7¾	7⅞	7¾	8

With but few exceptions the above list shows a slight improvement. Alpha opens in San Francisco to-day at $11 per share, as against $8 a week ago. Belcher, Best & Belcher Bullion and Caledonia are steady. California is notably lower, opening at $18 to-day, against 21½ last week. Consolidated Virginia is unchanged. Another mining suit is brought against the Bonanza companies in San Francisco. The complaint, which is of great length, is in substance, that the plaintiff brings suit on behalf of the stockholders of the Consolidated Virginia Mining Company to recover $35,634,338 wrongfully acquired by the defendants in the management of the Consolidated Virginia mine. The complaint also asks for the removal of the directors of the company.

Julia shows an important advance, closing yesterday at 8⅛, against 5⅝ last week. Reports from this mine are very conflicting. Some hold that the 2000-foot level will not be seen again for six months, while others say that the water can be got rid of in a month. It is stated that the ore-body on the 2000-foot level is nearly 30 feet wide and will mill from $30 to $40 per ton.

Grand Prize is unchanged; the new shaft of this mine is now down about 350 feet; the company's mill is now idle. The work of putting up the machinery and sinking the shaft will be prosecuted with vigor, but it will probably be two months at least before every thing will be in complete readiness for again taking out ore. Meantime drifting will be continued west on the ledge above the water line.

Eureka Consolidated stock is lower; it is reported that this company contemplates increasing its capital stock to 100,000 shares, or doubling it; what object there can be in this we fail to observe; when the stock approaches par it will be time then to increase the shares; but a wiser plan, and one that would keep the public confidence in this era of doubt and distrust, would be, to let well enough alone.

The *Commercial Herald* of the 16th inst. says of the market at San Francisco:

"There is no life in the mining stock market. Prices are generally very much lower, and the aggregate sales for the week have been but $1,500,000. The weakness is so universal that despondency broods over the entire list. Those who have lately infested the field would have us believe that the situation is not as bad as it appears on the face of the market in this city, and the alacrity with which assessments are paid by those who ought to know, on some of the bonanza region mines, would indicate strong faith in the future outcome of the vigorous prosecution of work on the lower levels. We hope the most sanguine expectations may be realized, and that the future of that great mineral lode will be as bright and productive as in the past. The depressed condition of trade in every department has much to do with the inactivity in mining stocks, and the reverse application may also be made, for when inactivity lacks in one it does in the other. However, legitimate mercantile business is now cutting loose from this manner of speculation, and each is more properly confined to its own current of transactions, the very severe experience of the past having of necessity brought this about.

The California mine is yielding about 400 tons of ore per day, and the Con Virginia 350 tons. It is believed that the repairs on the Con. Virginia shaft will be finished inside of sixty days. More men have been put in this mine and also in the Alta. Men are being discharged at the Justice mine. Work is vigorously prosecuted in the lower levels of the Ophir, the main incline having been sunk fifty feet below the 2000 level, and the rock passed through being hard blasting material. The winze below the 1900 level is 82 feet in depth, and the ore in the bottom is said to be of good quaility."

Union Mining Co. of Allegheny Co., Md.—The annual meeting of the stockholders of this company for the election of President and Directors will be held June 3d.

Frayer-Noble Metal Mining Co.—The annual election of Trustees to serve the ensuing year will take place June 6th.

Mineral Point Tunnel Co.—A meeting of the stockholders of the above company will be held for the purpose of voting upon a proposed increase of the capital stock of the said company to $5,000,000, and a proposed change in the number and par value of its shares. The meeting will be held June 19th.

The Silver King Mining Company on the 15th inst. declared its seventh consecutive dividend of 50c. per share. The present dividend will make $350,000 disbursed to stockholders since November last.

Assessments, with dates when delinquent: Alta, $1, June 14th; Kennedy, $1, June 12th; Empire (Idaho), 50c., June 7th; Sierra Nevada, 50c., June 19th; Hale & Norcross 50c., June 18th; Belcher, $1, June 19th; Mexican, 50c., June 19th; Nevada Gravel Mining Company, 10c.

AUCTION SALES.—During the week the following stocks were sold at auction:

Bascobel Silver Mining Co.—50 shares, at 65 cents for the lot.

North Barrier Gold Mining Co.—20 shares, par $100, at 50 cents for the lot.

Hamilton Copper Mining Co.—50 shares, par $25, at 30 cents for the lot.

Norwich Mining Co.—100 shares par $25, at 50 cents for the lot.

Missisquoi Mining Co.—10 shares, par $5, at $1.35 for the lot.

Milton Copper Mining Co.—100 shares, par $25, at 45 cents for the lot.

COAL TRANSPORTATION AND GENERAL MINING STOCKS.

COAL STOCKS.

NAME AND LOCATION OF COMPANY.		Feet on Vein.	Capital Stock.	SHARES. No.	SHARES. Par Val.	ASSESSMENTS. Total levi'd to date.	ASSESSMENTS. Date and amount per share of last. Mo.	Yr.	Amt.	DIVIDENDS. Total paid to date.	Last Dividend. Mo.	Yr.	Amt.	Rate per Ann.	HIGHEST AND LOWEST PRICES PER SHARE IN CURRENCY AT WHICH SALES WERE MADE. N. B.—Quotations of D., L. & W. R. R., and Pa. Coal Co. are per $100—two shares. May 18. H.	May 18. L.	May 20. H.	May 20. L.	May 21. H.	May 21. L.	May 22. H.	May 22. L.	May 23. H.	May 23. L.	May 24. H.	May 24. L.	SALES.
			$		$100	$				$				Per c'nt													
Consol. Coal	Md.		10,250,000	102,500	$100	*					Jan.	1877	2½														
Del. & H. Canal	Pa.		20,000,000	200,000	100	*				38,821,104	Aug.	1876	4	9	56	55½	56¼	55¼	56	55⅜	55⅛	54⅞	55⅜	55¼	55⅜	55	8,132
Del., Lac. & W. R. R.	Pa.		26,200,000	524,000	250	*					July	1876	2½	5	56	54⅞	56¼	54⅞	56¼	55	55½	55⅛	55¾	55¼	55¾	55	88,900
Lehigh C. & Nav.	Pa.		10,448,550	208,971	50	*					Nov.	1876	1½	5½	16¾	16⅜	17	17	17	16¾	16⅞	16⅜	17	16⅜	17½	17¼	1,025
Lehigh Valley R. R.	Pa.		27,042,900	540,858	50	*									36½	36⅛	36¾	36¼	36½	36½	36⅛	35⅞	36¼	36¼	36⅜	36⅜	912
Maryland Coal	Md.		4,400,000	44,000	100	*					Jan.	1876	1½	1½													
N. J. Central R. R.	Pa.		20,600,000	206,000	100	*					Apr.	1876	2½	2½	21	20	22¾	20⅜	22⅞	22	22⅜	22	22½	22⅛	22⅝	21⅜	18,497
Pennsylvania Coal	Pa.		5,000,000	100,000	50	*					Feb.	1878	3			155								155			93
Pennsylvania R. R.	Pa.		68,870,200	1,337,404	50	*					May.	1877	1¼	8	27¾	27⅛	27⅝	27¼	28	27⅝	28	27⅜	28	27⅝	28¼	28¼	33,271
Phil. & Read. R. R.	Pa.		34,278,175	685,563	50	*				43,012,497	Jan.	1876	2½†	10	13⅜	13¼	13⅜	13¼	13⅜	13⅜	13⅜	13⅜	13⅜	13¼	13⅜	13¾	6,227

GENERAL MINING STOCKS.

Dividend Paying Mines.

American	Col.		1,000,000	100,000	10	*				50,000	May.	1878	$0 10	12											6	5	350
Belcher, g. s.	Nev.	1,040	10,400,000	104,000	100	1,280,400	Mar.	1878	1 00	15,397,200	Apr.	1876	1 00	12													
Bobtail, g.	Col.	2,500	1,136,630	227,326	5	*				56,831	Nov.	1877		25													
Bobtail Tunnel, g.	Col.		100,000	20,000	5	52,000	July	1873	0 30	40,000	Dec.	1877		50	20												
California, g. s.	Nev.	600	54,000,000	540,000	100					24,840,000	Mar.	1878	2 00	24			22¾	22			19½		18¾	18½	19	18¼	220
Calumet & Hecla, c.	Mch		2,000,000	80,000	25	1,000,000				12,650,000	Feb.	1878	5 00	20													
Central, c.	Mch		500,000	20,000	25	100,000	June	1802	0 65	1,200,000	Feb.	1878	5 00														
Chollar Potosi, g. s.	Nev.	1,400	2,800,000	28,000	100	1,578,000	Jan.	1878	3 00	3,060,000	Feb.	1872	1 00														
Copper Falls, c.	Mch		1,000,000	20,000	50	535,000	May.	1876		100,000	Nov.	1871	1 00														
Cons. Virginia, g. s.	Nev.	710	54,000,000	540,000	100	474,600	June	1873	3 00	38,880,000	Mar.	1878	2 00	24			14	13½	13⅝				13¾				40
Confidence, g. s.	Nev.	130	2,496,000	24,960	100	248,832	Apr.	1878	0 20	78,000	May.	1865	8½	8½													
Cons. Her. & Roe.	Col.	16,500	1,000,000	100	*					120,000																	
Crown Point, g. s.	Nev.	600	10,000,000	100,000	100	1,673,370	Jan.	1878	1 00	11,588,000	Jan..	1875	2 00	24													
Eureka Cons., g. s. L.	Nev.		5,000,000	50,000	100	100,000	May	1876	1 00	1,600,000	Feb.	1878	3 00	24													
Eureka G. Mg., g.	Cal.	1,080	2,000,000	20,000	100					2,134,000	Aug.	1877	2 00														
Franklin, c.	Mch		500,000	20,000	25	360,000	June	1876	5 00	585,000	Nov.	1871	1 00														
Gould & Curry, g. s.	Nev.	612	10,800,000	108,000	100	2,666,000	Apr..	1878	1 00	3,826,800	Oct.	1870	10 00														
Grand Prize	Nev.									1,200,000	Feb.	1878	1 00														
Hale & Norcross, g. s.	Nev.	400	11,200,000	112,000	100	2,746,000	Dec..	1877	1 00	1,598,000	Apr.	1871	5 00	12													
Hukill, g. s.	Col.	3,288	1,000,000	100,000	10	*				160,000	May.	1878	0 10	12	4.70		4.70										200
Kentuck, g. s.	Nev.	95	3,000,000	30,000	100	270,000	Dec..	1874	1 00	1,252,000	Mar.	1870	5 00														
Leopard, L. g. s.	Nev.	1,500	5,000,000	50,000	100	125,000	Feb..	1878	50	162,500	Dec.	1876	0 50														
Merrimac, s.	Mas.	1,500	500,000	100,000	5	*				120,000	Mar.	1878	0 10	12													
Minesota, c.	Mch.		1,000,000	20,000	50	436,000	June	1869	1 00	1,820,000	Mar.	1876	0 50														
Moose	Col.	39,000	2,000,000	200,000	10	*				200,000	Mar.	1878	0 25	10													
National, c.	Mch.		500,000	20,000	25	195,000	Oct..	1875	1 00	360,000	Oct.	1873	1 00														
N. Y. & Colorado, g.	Col.		1,000,000	50,000	20	*				20,000	Mar.	1877	0 20						1½								100
Northern Belle, s.	Nev.	1,000	5,000,000	50,000	100					1,425,000	Feb.	1878	1 00				9½										30
Ontario.	Utah	3,000	10,000,000	100,000	100	*				1,300,000	May	1878	3 00	6	36		36						36½	36½	36½	36	668
Ophir, g. s.	Nev.	675	10,080,000	100,800	100	3,136,000	Mar.	1878	1 00	1,394,400	Mar.	1864	4 00														
Pewabic, c.	Mch.		500,000	20,000	25	185,000	June	1868	3 00	460,000	July	1873	1 00														
Phœnix, c.	Mch.		1,000,000	20,000	50	817,500	Sept.	1870	3 00	20,000	Jan.	1876	1 00														
Plumas	Cal.		1,000,000	100,000	10					26,000	May	1878		10	4.05	4.00	4.05	4	4.15	4	4.15	4	4.10	4	4.10	4	8,470
Polar Star, g. s.	Col.	1,300	500,000	50,000	10	*				5,000	Jan.	1878	0 10														
Quincy, c.	Mch.		200,000	20,000	10					2,130,000	Feb.	1877	4 00														
Raymond & Ely, g. s.	Nev.	5,000	3,000,000	30,000	100	540,000	Dec..	1876	1 00	3,075,000	Sept.	1873	3 00								4½						100
Ridge, c.	Mch.		500,000	20,000	25	200,000				90,000	Feb.	1875	1 00														
Rye Patch	Nev.	3,000				97,500	Nov.	1876	0 50	150,000	Dec.	1877	0 25														
St. Joseph, L.	Mo.	2,000 acs.	1,000,000	100,000	10					250,000																	
Savage, g. s.	Nev.	800	11,200,000	112,000	100	3,762,500	Apr..	1878	1 00	4,460,000	June	1869	3 00														
Seaton, g. s.	Col.	1,700	500,000	50,000	10	*				10,000	May	1877	0 10	12							1						200
Sierra Nevada, g. s.	Nev.	3,650	10,000,000	100,000	100	1,050,000	Jan.	1878	0 50	102,000	Jan.	1871	1 00	10													
Silver King										200,000	Feb.	1878	0 50														
Standard	Cal.									300,000	Feb.	1878	1 00														
Yellow Jacket, g. s.	Nev.	1,200	12,000,000	120,000	100	3,678,000	Apr..	1878	2 00	2,184,000	Aug.	1871	2 50														

Non-Dividend Mines.

Allouez, c.	Mch.		1,000,000	20,000	50	940,000	May	1876	5 00																		
Alpha, g. s.	Nev.	300	3,000,000	3,000	100	213,000	Mar.	1878	1 00																		
Am. Flag, g.	Col.	5,300	600,000	60,000	10	*									10c						9c				10c	9c	1,000
Bertha & Edith. g.	Vir.	645 acs.	3,500,000	350,000	10	*									13c	9c	12c	9c	11c	10c	12c	9c	9c	9c	9c	6c.	145,000
Best & Belcher, g. s.	Nev.	545	10,080,000	100,800	100	438,592	Apr.	1878	1 00																		
Buckeye	Col.		5,000,000	500,000	10	*											37c		37c		37c	38c	37c		37c		2,300
Bullion, g. s.	Nev.	943½	10,000,000	100,000	100	2,802,000	Jan.	1878	1 00																		
Caledonia, g. s.	Nev.	2,188	10,000,000	100,000	100	1,485,000	Feb.	1878	0 50																		
Cashier	Col.		500,000	250,000	2	*											1½	1.35	1.55	1½					1.55		1,300
Cleveland, g.	Col.	3,715	250,000	25,000	10	*																					
Cons. Imperial, g. s.	Nev.	468	50,000,000	500,000	100	675,000	Apr.	1878	0 20																		
Con. N. Slope & E. C.T.	Col.	15,000	500,000	10,000	50	*																					
Dahlonega	Ga.		250,000	250,000	1	*									17c	16c			18c	17c	20c	18c	18c	17c	18c	17c.	35,100
Dana, c.	Mch.		500,000	20,000	25	68,000	Jan.	1863	0 50																		
Dawson, s.	Ont.		1,200,000	60,000	20																						
Duncan, s.	Ont.		1,200,000	60,000	20	75,000	July	1876	41⅔																		
Exchequer, g. s.	Nev.	400	10,000,000	100,000	100	380,000	Jan.	1878	1 00																		
Gold Placer, g.	Col.		5,000,000	200,000	25										1.20	1	1.35	94	1.35	1¼	1.20	1	1.05	95c	1.05		12,300
Granville, g.	N. C.	9,000	1,000,000	100,000	10	*				0 50																	
Humboldt, c.	Mch.		500,000	20,000	25	100,000	Sept	1876	0 15																		
International, s.	Ont.		1,200,000	60,000	20																						
Julia, g. s.	Nev.	3,000	11,000,000	110,000	100	525,000	Jan.	1878	0 75																		
Justice, g. s.	Nev.	2,100	10,500,000	105,000	100	2,394,500	Mar.	1878	1 50																		
King's Mountain, g.	N. C.		1,200,000	120,000	10	*													1.05				1.60				200
Lacrosse	Col.	3,900	1,000,000	100,000	10	*									39c	38c	40c	35c	38c	37c	37c	35c	36c	35c	36c	35c.	55,400
Luzerne	Col.	4,200	5,000,000	500,000	10	*																					
Madison, c.	Mch.		500,000	20,000	25	123,000	Sept	1876	0 10																		
Mariposa preferred.	Cal.	44,387	5,000,000	50,000	100	1,425,000	June	1877	1 00																		
" common.	Cal.	acres.	10,000,000	100,000	100	1,425,000	June	1877	1 00												1.20		1½				335
Memphis	Col.	6,000	300,000	60,000	5	*																					
Mesnard, c.	Mch.		500,000	20,000	25	160,000	Apr.	1876	0 50																		
Mexican, g. s.	Nev.	600	10,080,000	100,800	100	181,440	Aug.	1877	0 30																		
Mt. Bross Tunnel	Col.	8,000	2,000,000	200,000	10	*									1.10		1.10		1.10		1.10						1,300
Overman, g. s.	Mch.		1,000,000	40,000	25	3,173,880	Apr.	1878	3 00																		
Osceola, c.	Nev.	1,200	5,840,000	38,400	100	2,567,880	Nov.	1877	3 00																		
Petherick, c.	Mch.		500,000	20,000	25	165,533	Mar.	1876	0 50																		
Pleasant View, g.	Col.	1,200	200,000	20,000	10	*																					
Quicksilver preferred.	Cal.	8,500	4,291,300			*											32½										200
" common.	Cal.	acres.	5,708,700	100,000	100																16½	15⅝	16½				450
Rockland, c.	Mch		500,000	20,000	25	495,000	Jan.	1874	1 00																		
Seg. Belcher, g. s.	Nev.	160	640,000	6,400	100	244,800	Apr.	1876	5 00																		
Silver City, g. s.	Nev.	3,900	6,310,000	63,100	100	15,775	Nov.	1875	0 25																		
Silver Hill, g. s.	Nev.	5,400	5,400,000	54,000	100	142,600	Dec.	1877	1 00																		
Star, c.	Mch.		500,000	20,000	25	365,000	Mar.	1876	0 50																		
Superior, c.	Mch.		500,000	20,000	25	340,000	Mar.	1874	0 25																		
Union Cons. g. s.	Nev.	850	10,000,000	100,000	100	310,000	Apr..	1878	0 25																		

g. Gold. s. Silver. L. Lead. c. Copper. * Non-Assessable.

Total Assessment levied to date..... $2,057,802 | Total Sales of Coal Stocks for the week..... 157,057 shares
Total Mining Dividends to date..... 20,477,332 | Total Sales of Mining Shares for the week..... 265,268 "

† A dividend of 3½ per cent. was declared on the preferred stock of this Co. in July.